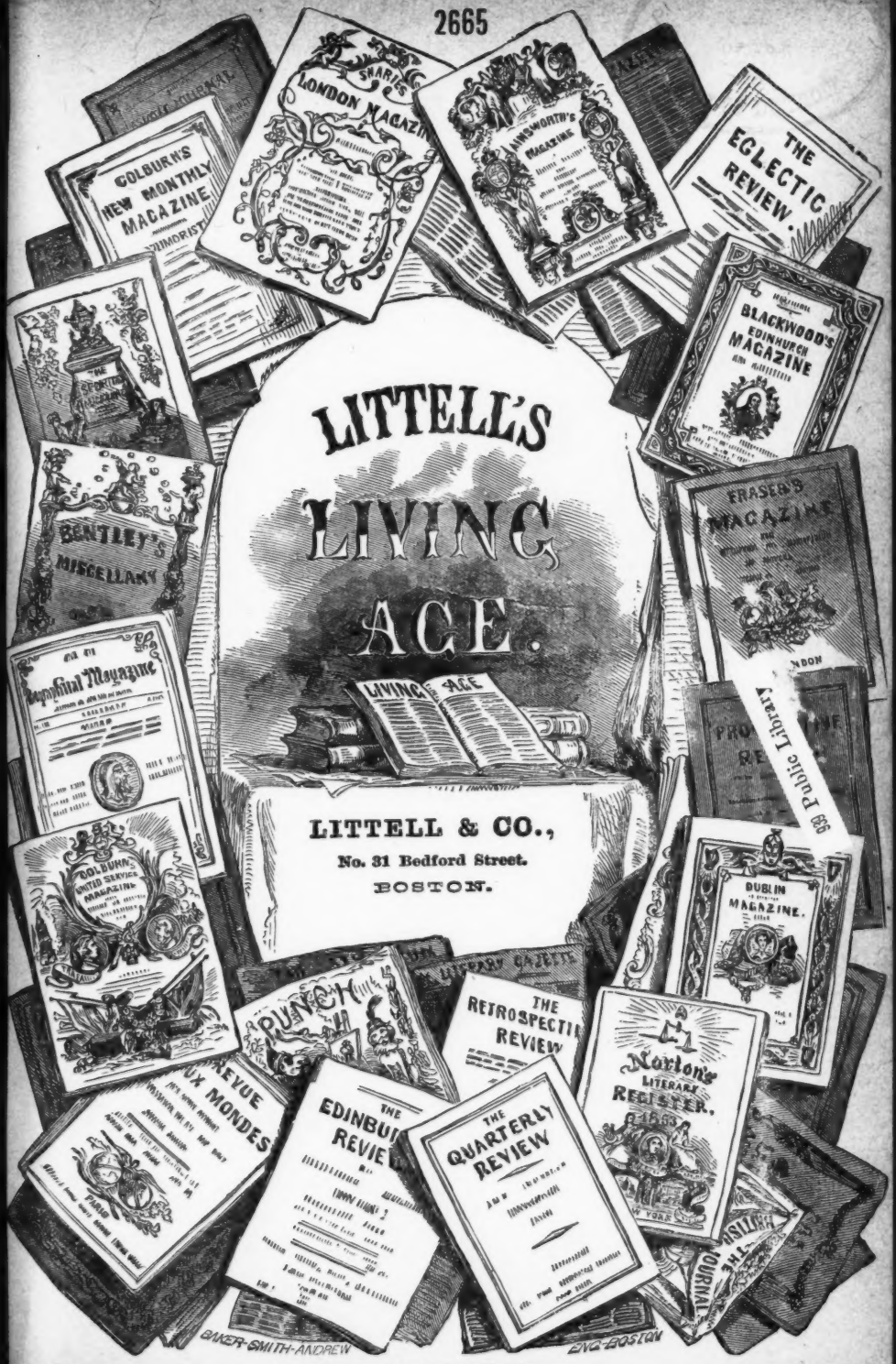

Entered as Second Class Mail Matter.

GIVEN !!!

AN EXTRAORDINARY OPPORTUNITY

To any **NEW SUBSCRIBER** to the

"LITTELL'S LIVING AGE,"

we will send

For $9.00,

THE LIVING AGE for one year, postpaid, and a Set of the

PERSONAL MEMOIRS OF P. H. SHERIDAN,

General, United States Army.

IN TWO VOLUMES,

WITH MAPS, PLANS AND PORTRAITS.

Every patriotic American should own a copy of this popular and valuable work. It is much more than an autobiography; it is a history, recording the events of the most thrilling and critical period of the country's existence since the revolution.

The work here offered is in two volumes, beautifully printed from good, clear type, on heavy white paper, wide margins, marble edges, and handsomely and strongly bound in half-calf.

It would make AN ELEGANT PRESENT.

This is no cheap reprint gotten up to catch subscribers; but is all it is represented above and was originally published at $9.00. The dollar added to the price of THE LIVING AGE for these memoirs would scarcely suffice to *pay for the binding of a single volume.*

The price, $9.00, includes postage on THE LIVING AGE only. The books must be sent at the subscriber's expense.

☞ The above offer is open to any name not now on our lists.

Address

LITTELL & CO.,

P. O. BOX, 5206, BOSTON, MASS.

LITTELL'S LIVING AGE.

Sixth Series, Volume VII. } No. 2665. — August 3, 1895. { From Beginning, Vol. CCVI.

CONTENTS.

I.	Recent Science. By Prince Kropotkin,	*Nineteenth Century*,	259
II.	A Boer Pastoral. By H. A. Bryden,	*Blackwood's Magazine*,	274
III.	The Letters of Coleridge. By Andrew Lang,	*Contemporary Review*,	279
IV.	The Grave of the Druids. By E. Harrison Barker,	*Temple Bar*,	287
V.	Mountaineering Memories. By H. Preston-Thomas,	*Blackwood's Magazine*,	296
VI.	Unconquered Mithras. By Thomas H. B. Graham,	*Gentleman's Magazine*,	306
VII.	When we were Boys. Part III.,	*Macmillan's Magazine*,	312
VIII.	The Land of Siam,	*Minster Magazine*,	319

POETRY.

Monkshood,	258	"What is the world trying to say?"	258
Prayer,	258		
To Know!	258		

PUBLISHED EVERY SATURDAY BY
LITTELL & CO., BOSTON.

TERMS OF SUBSCRIPTION.

For Eight Dollars *remitted directly to the Publishers*, the Living Age will be punctually forwarded for a year, *free of postage*.

Remittances should be made by bank draft or check, or by post-office money-order, if possible. If neither of these can be procured, the money should be sent in a registered letter. All postmasters are obliged to register letters when requested to do so. Drafts, checks, and money-orders should be made payable to the order of Littell & Co.

Single copies of the Living Age, 18 cents.

MONKSHOOD.

On steep hillside where sleeps untrodden snow,
Where frozen blasts through Alpine forests blow—
In wild waste places blooms the poison-flower;
Fair poison-flower! within whose venom breath
Lurk sickly scents of ill and seeds of death,
But still His gift whose signs are peace and power.

Wafted afar, the purple glories fall
By lowly cottage path and crumbling wall,
Hiding in hooded depths the means to bless;
Secrets to bid the fluttering heart be still,
Strength to subdue a thousand forms of ill,
Soft might to soothe like tender hand's caress.

The quivering lip, the hot brow's fever pain,
The maddening ache of racking limbs and brain,
Owe to the deadly draught a magic peace.
By science ruled, broad earth's mysterious harms
Yield up their spells — life's knowledge death disarms,
And Nature's self can bid her terrors cease.

Argosy. C. E. Meetkerke.

PRAYER.

FROM THE GERMAN OF GEIBEL.

O thou, at whose command divine
The raging storms of ocean cease,
This wild, unruly heart of mine
Lead to thine everlasting peace;
This heart, that only feels the glow
That every changing passion lends,
And, through its erring love, brings woe
Alike upon itself and friends.

Deliver it, good Lord, I pray
From passions' storm; O quench the fire
Of sinful lust, and break the sway
Of every passing vain desire;
Give it, O Lord, a changeless aim,
That, in the contemplation blest,
Forgetting doubt, and fear, and shame,
It may at last find endless rest.

Academy. C. M. A.

TO KNOW!

"Of making many books there is no end."
"Now we know in part."

I.

To know! Yes! to know!
We do but piece together still
Such fragments of the Eternal Will
As He may deign to show.
We work by feeble wavering light,
Never to rest, never to rest;
Too big for our poor puzzled sight,
Were all in full expressed
Through the pale screen that dims it so.
To know! To know!

II.

To know! Yes! to know!
But thick black clouds above us swell,
Passion and prejudice, which quell
These faint few beams below.
The air around grows dark and dense;
We breathe its humors how we may;
The fitful lights which strike our sense
We seize, and call them day.
We alter as they come and go.
To know! To know!

III.

To know! Yes! to know!
But when at last through purer air
We see the world's great frame laid bare,
And life by order grow —
When our unstrainèd eyes shall find
That clear, bright truth reveals the whole,
And scarce believe they once were blind,
Or earth could dull the seeing soul;
Will it be nought, the visual throe
As here we strove to know?

Bernard Pares.

Gentleman's Magazine.

What is the world trying to say?
Why is the light so tender and grey—
Why are the tremulous leaves a-sway
On the trees new fledge with the faintest green?
Nay, he were wise who could say what these things mean,
and tell the secret of May.

What is my heart trying to say?
Why does it tremble and hurry and stay
At the sight of a leaf on a sunny day,
Of a leaf tho' never so delicate green?
Nay, he were wise who could say what these things mean,
and tell the secret of May.

H. C. Beeching.

From The Nineteenth Century.

RECENT SCIENCE.

BY PRINCE KROPOTKIN.

I.

No substance in nature seemed to be better known to chemists than atmospheric air. The composition of air taken from the most different localities and altitudes had so often been analyzed by the best chemists and physicists that up to the last few years it seemed almost inadmissible that any gas existing in the atmosphere should have escaped detection. However, modern chemistry disposes of such perfect methods of analysis, and our modern laboratories are supplied with such wonderfully precise instruments — it is sufficient to say that in a modern weighing the incertitude is inferior to one fifty-thousandth part of one ounce — that when the study of air and other gases was again taken in hand with the aid of the new instruments and methods, a vague suspicion began to grow up. "After all," it was said in scientific circles, "atmospheric air is not so very well known," and it possibly may contain small quantities of some unknown gases mixed with its principal components — nitrogen and oxygen, carbonic acid, and vapor of water.[1] These suspicions are now fully confirmed. When the researches of Lord Rayleigh and Professor Ramsay were published in full, it became evident that atmospheric air contains over one-half per cent. of some gas (or maybe gases) formerly unknown, and that this gas — named argon by its discoverers — is possessed of chemical properties which offer many a puzzle to the chemist. The distrust which the announcement of the discovery was met with in August last has been dissipated since, and the question, What argon is? stands now foremost.

[1] Mendeléeff, in his "Principles of Chemistry" (English Edition, vol. i., p. 226, note 12), already expressed the opinion that, under the electrical discharge, the nitrogen of the air may be partially dissociated, giving origin to monatomic molecules (N). Helmholtz, having received the news of the discovery of a new constituent of the atmosphere, said that he always thought "that there was something more in the atmosphere" (Lord Rayleigh's lecture on argon at the Royal Institution).

Is it an element which, like hydrogen or oxygen, cannot be decomposed into still simpler bodies — a "chemical individuality," as Mendeléeff says, which maintains its individual character even when it combines with other individualities? Or is argon a mixture of several new elements? Or is it a compound of well-known elements which were never met before in that special combination? These questions press themselves upon every one's mind. However, up to the present date they have not been answered, and most probably the answer will not be given for some time to come, not only because the discovery of argon was immediately followed by the discovery of several other gases, but also because argon is so peculiar in its behavior as to raise a host of questions of paramount importance for chemistry. The general reader, accustomed to get from science ready results, may therefore feel disappointed when, after having perused the following pages, he only finds a number of new unsolved problems cast upon science. But, to follow step by step the inquiry which is now going on, to share the hopes and the doubts of the explorers, and thus to be initiated into the mysteries of scientific research itself, and into the methods of discovery of scientific laws, is perhaps even more interesting, and certainly much more suggestive, than to learn some time later the bare results.

For the last seven years Lord Rayleigh has been engaged in remeasuring the densities of the commonest gases, with all the precision obtainable from modern appliances, and his work was soon recognized to be a standard work. However, even in the earlier stages of his researches, while he dealt with oxygen and air, there appeared certain discrepancies between his otherwise most accurate results, which, precisely because the measurements were so perfect, could not well be explained by unavoidable errors, and created a certain uneasiness as to the permanence of the constitution of air. But when he came later on to deal with nitrogen,

things took a more serious aspect. Nitrogen is an element; and, whether it be obtained from the air or from one of the nitrogen compounds, such as ammonia, it must always be the same gas, endowed with the same physical and chemical properties. And yet this was *not* the case. Nitrogen obtained from the atmosphere by any one of the usual methods was regularly by about one-half per cent. heavier than nitrogen obtained in the chemical way from some compound. In each of the two sets of determinations the measurements beautifully agreed together; but the two sets totally disagreed, although all possible precautions had evidently been taken to prevent contamination by other gases, and a strong control was exercised to detect contamination if it had taken place. The disaccord had to be explained.[1]

The nearest explanation was, of course, to find fault with the chemically prepared nitrogen; notwithstanding all precautions it might still contain some *lighter* gas — hydrogen, for instance; but test experiments were installed and compelled the rejection of this explanation, so that there remained but one other alternative — namely, that the atmospheric nitrogen, supposed to be the purest of the two, was not pure at all; that it contained some *heavier* gas which enters into the composition of the atmosphere to no small amount, but in some way or another had hitherto escaped notice. Lord Rayleigh naturally hesitated to draw a conclusion so much opposed to all current opinion, and in his perplexity he applied through the medium of *Nature* to chemists, asking them to aid him with their suggestions.[2] The suggestions came, and in a great number; but none of them explained the difficulty. Some time later, Professor Ramsay asked and obtained permission to investigate the matter, and the two explorers, the physicist and the chemist, working first separately, made the necessary arrangements for isolating the new heavier gas by two different methods. They obtained it, nearly pure, and on account of its unwillingness to enter into any chemical combination they proposed for it the name of argon. The discovery was announced at Oxford, at the last meeting of the British Association.

This announcement, as already mentioned, was met with a great deal of distrust, which only grew stronger as time went on, and nothing was heard during the next five months in support of so important a statement. It was only after all the details of the researches were made public at the end of January last[3] that all doubts as to the real existence of a new constituent of the atmosphere were removed, and the whole inquiry was recognized by competent judges as an exemplary chemical research.[4]

The first step to be made in an inquiry of this sort is evidently to obtain the new body in sufficiently large quantities for chemical analyses. This proved, however, to be a hard task. If argon easily combined with other bodies, any amount of it could be obtained, because the nitrogen of air, of which there is an unlimited supply, contains as much as one per cent. of argon. But the new gas refuses to enter into chemical combinations, and it is necessary to absorb all the oxygen, nitrogen, carbonic acid, and so on, from a given considerable volume of air, and to obtain argon as a residue. Yet nitrogen in its turn is also a very inert body, which it is by no means easy to force into a chemical combination; so that, after oxygen and the rest have been eliminated, there is still the difficulty of removing nitrogen from the mixture. It must, for instance, be passed for hours again and again over

[1] The average weight of one litre of nitrogen was 1·2572 grammes when it was derived from the atmosphere, and 1·2505 grammes for chemically obtained nitrogen.

[2] September 29, 1892, vol. xlvi., p. 512. See also his two subsequent communications to the Royal Society.

[3] Proceedings of the Royal Society, January 31, 1895; *Nature*, February 7, 1895, vol. li., pp. 347-356.

[4] Mendeléeff, Proceedings of the Russian Chemical and Physical Society, March 2 (14), 1895; and in *Nature*, vol. li., p. 543; Berthelot in *Comptes Rendus*, February 4, 1895, tome cxx., p. 235 *sq.*

some red-hot magnesium or lithium,[1] until, most of it having combined with the metal, a small quantity of argon is obtained, which yet is never quite free from nitrogen. Or else atmospheric air mixed with some oxygen is sent through a tube in which electric sparks are passed, and while the nitrogen of the air is thus induced to combine with oxygen, argon remains ; but this operation, too, must be continued for hours, and the produce is never pure. There is, finally, a third method, namely, to send air through a porous membrane which separates gases of different densities, but nothing is gained by it in rapidity. All this is of course most wearisome, and even has been made a reproach to Lord Rayleigh and Professor Ramsay ; but chemical bodies must be taken as they are, and those of them which, like argon, refuse to yield to chemical routine are perhaps the most conducive to an extension of chemical knowledge.

Whenever a new body is discovered, its leading physical properties are always the easiest, and therefore the first, to be determined. We thus know about argon that it is a colorless and inodorous gas, having about twenty times (19·7 to 19·9) the density of hydrogen, and much more soluble in water than either oxygen or nitrogen. Accordingly, the air which is dissolved in water contains a larger proportion of argon than free atmospheric air ; in unboiled water we drink a greater proportion of dissolved argon than we inhale of it while breathing, and this property may prove of great importance for vegetation if argon enters, as it probably does, into the composition of plants. It requires also a very low temperature for liquefaction. Olszewski, the Cracow professor, whose admirable achievements in the liquefaction of gases have lately been rendered popular in this country by Professor Dewar, has turned some argon which was sent to him by Professor Ramsay into a liquid at a temperature of 305° Fahr. below zero, and into a block of opaque ice at 310° below zero.[2]

But these physical properties tell us nothing about what argon is, and all attempts to unveil its chemical nature have hitherto failed. Even Moissan, with his powerful electric furnace, could not overpower its inertness. Neither fluorine, which is one of the most active elements, nor titanium, boron, and lithium, which readily combine with nitrogen, could be induced to combine with argon. Berthelot alone, using the silent electrical discharge, has achieved a partial success : he made argon combine with benzine and obtained a yellow resinous substance ; but the quantity of argon he had received from Professor Ramsay was so small (a little over two cubic inches) that nothing could be said about the produce of combination beyond its being similar in aspect to the products of combination of nitrogen with benzine.[3] Negative properties is thus all we know about the chemical nature of argon. Even the spectroscope — this precious reconnoitring instrument — is undecided in its indications. The spectrum of argon is quite characteristic. No other known gas or vapor, Mr. Crookes writes, gives a similar spectrum. But when a glass tube filled with argon is made to glow under the electrical discharge, and the glow is examined with the spectroscope, two different spectra appear — one of them chiefly in the red and the other chiefly in the blue — according to the energy of the discharge. These two spectra may of course indicate that argon is a mixture of two gases, although it is known that nitrogen and other gases

[1] This last, the lithium method, has been experimented upon with success at Nancy, by Guntz (*Comptes Rendus*, April 8, 1895, vol. cxx., p. 777).

[2] The corresponding temperatures for nitrogen are —318° and —353° Fahr. As to oxygen, it has not yet been brought into a solid state, but it liquefies at —297°. The critical temperature for argon is —186° Fahr., and the critical pressure amounts to 50·6 atmospheres.

[3] From a subsequent communication of Berthelot we learn that another sample of argon, also prepared by Mr. Ramsay, behaved quite differently from the former. Eighty per cent. of the former combined with benzine, but only six to ten per cent. of the second would enter into the same combination (*Comptes Rendus*, April 16, 1895, tome cxx., p. 798). Did the former contain so much nitrogen ?

also show two spectra under similar conditions; but Olszewski has found that argon has such a definite temperature of liquefaction, as well as such a definite critical temperature and pressure,[1] that, if it be a mixture, the mixture must contain but a small proportion of another gas. It must also be borne in mind that, under our present knowledge of the spectral analysis, it remains but an auxiliary to the chemist; it offers one of the means of preliminary exploration, but any positive decision rests with the regular chemical analysis.

What, then, is argon, or, at least, the gas which prevails in what science already names argon? From all that has been said it does not appear probable that it is a chemical compound. A compound could hardly have resisted so many chemical and electrical tests. It has, on the contrary, all the behavior of an element; and in such case what is, then, the weight of its atom? In other words, taking the weight of an hydrogen atom for a unit, what is the corresponding weight for argon? Its density being twenty times the density of hydrogen, we know that its molecule must weigh forty times as much as an atom of hydrogen; but for argon, as for each new body whose compounds are not yet known, the difficulty is to decide how many atoms its molecule contains. If it were built on the same pattern as the molecules of hydrogen, or oxygen and many other gases, each of which consists of two atoms locked together, there would be no difficulty. We should say that its atomic weight is 20 (twenty times the weight of an hydrogen atom), and argon would find a vacant place in the row of elements between fluorine (atomic weight, 19) and sodium (23), although it must be said that its inertness would badly clash in this case with the chemical properties of its next-door neighbors. In the Mendeléeff periodic classification of elements it would also find a ready place, and even would give an additional symmetry to the system.[2] Moreover, Dr. Gladstone in this country and Mr. Hill in America have simultaneously indicated in connection with argon a striking analogy in the growth of the masses of many elements which increase alternately by one unit and by three units; and a body having an atomic weight of 20 would further confirm this symmetry;[3] while Lecoq de Boisbaudran, who also has elaborated a system of classification of elements, requires in his turn a body having an atomic weight of a little over 20, and very inert, to fill up a gap in his system.[4] All these analogies are of course very interesting; but in the mean time we have no reason to maintain that argon really is the required element; the more so as another hypothesis seems to be much more, or, at least, equally probable.

All hitherto obtained argon was contaminated by nitrogen, which is lighter than argon. Consequently we cannot be sure that its density is exactly 19·9; it may exceed 20, and even approach to 21, in which case its molecular weight would be about 42; and then argon, in all probability, would be nothing but an allotropic form of nitrogen. We know indeed that the atmosphere contains a varying proportion of ozone, which is nothing but a condensed form of oxygen grouped in molecules of three atoms each (O_3), while the molecule of common oxygen contains only two atoms (O_2). It is therefore possible that nitrogen, too, might appear in two forms: with a triatomic molecule (N_3) in argon, and with the usual biatomic molecule (N_2) in ordinary nitrogen. This is the hypothesis towards which Mendeléeff, Berthelot, and Professor Dewar incline, and various circumstances yield it a

[1] For critical temperatures and pressures see a previous "Recent Science" review (LIVING AGE, No. 2602).

[2] By giving an eighth group (or column) to the second series, which is an "even" series — several other even series also having their eighth groups — and by having certain properties characteristic of the eighth groups or columns.

[3] J. H. Gladstone's letter in *Nature*, February 21, 1895; and E. E. Hill's "Argon, Prout's Hypothesis, and the Periodic Law" in *American Journal of Science*, May, 1895, p. 405.

[4] *Comptes Rendus*, 1895, tome CXX., p. 361.

certain support, namely, the concurrent appearance of argon and nitrogen in nature, the difficulty of separating them from each other, their inertness, exaggerated in argon, their common lines in the spectra, their double spectra themselves, and the outer resemblance between their benzine compounds in Berthelot's experiments; perhaps also the fact that a small quantity of argon was found in nitrogen obtained from one of its compounds.[1]

However, certain measurements relative to the heat-absorbing capacity of argon — too technical to be discussed in this place — seem to point out that, under our present conceptions as to the arrangement of atoms in molecules, we ought to consider the molecule of argon (like the molecule of mercury vapors) as consisting of one atom only. In this case the weights of both its molecule and its atom would be equal to 40. But not only is there no room for such a body in the periodical system — the place being already occupied — but argon would stand by its chemical inertness as a unique exception in a classification which indicates the chemical properties of every other element from its position in the system. The periodic law will certainly not be thrown overboard to suit this unique exception; so that chemists and physicists may perhaps have to revise their present ideas as to the arrangement of atoms in molecules, and to complete them by introducing into molecular structure the conception of chemical energy. Who knows whether the contradiction displayed by argon will not be an impulse to the appearance of some epoch-making work on the structure of matter?[2]

[1] Lord Rayleigh and Mr. Ramsay explain this last circumstance by the fact that in the manipulation of the gases large quantities of water were used, and water freely dissolves argon; to which Mendeléeff very justly remarks that this is undoubtedly very possible, but has to be proved. See Lord Rayleigh's objections to this hypothesis in his Royal Institution lecture (*Nature*, June 13, 1895).

[2] It is well worth noticing that the case of argon is opposed to the case of chlorine, which is chemically a most active body, and also deviates from the law, but in an opposite direction. (See Mendeléeff's note on argon, *l.c.*)

II.

THE researches were at this point in March last, when another far-reaching discovery was announced by Professor Ramsay. It being known that most metals and minerals absorb various gases which can be extracted from the metal or mineral, it was natural to inquire whether some minerals might not contain argon. This was done, and in the course of his investigations Professor Ramsay was brought to extract and to analyze the gas which is contained in a lately discovered mineral, clevéite, and which was said to be nitrogen. This gas contained a revelation. It proved to be argon, as Mr. Ramsay expected, but argon mixed with some other gas; and this gas, on spectroscopic examination, displayed, among very many other lines, one bright yellow line which at once caught the attention of the explorers. It was not the well-known yellow line of sodium, but was identified by Mr. Crookes as another line frequently seen in the spectrum of the sun's chromosphere, but never obtained before from any terrestrial object. This line, being very characteristic of the gases of the sun's atmosphere, was ascribed several years ago to some element unknown on the earth, but widely spread on the sun, which was therefore named helium. Now, this element was finally captured in a glass tube in the laboratory.[3]

One can easily imagine the sensation produced by the announcement of this discovery. Many chemists had for years searched for helium among the substances which exist on the earth and in meteorites fallen from the celestial spaces, but in vain; while now the longed-for yellow line glittered in the spectroscope, quite unexpectedly, originating from a by-produce discovered in the search for argon! Upon the reception of the welcome news, the Upsala Professor Cleve (in whose

[3] Communication made to the Chemical Society at its anniversary meeting (*Nature*, April 4, 1895, vol. li., p. 543, lii., p. 7; Proceedings of the Royal Society, April 25).

honor Nordenskjöld had named the mineral) at once extracted the new gases, and Thalén, one of the best spectroscopists of our time, fully confirmed Mr. Crookes's statement. The gas obtained at Upsala showed the same yellow line, but it contained no trace of argon; and Cleve at once ascertained that it was of a very low density. This was confirmed by subsequent experiments, and the last news from Upsala is to the effect that Cleve's helium has only 2·02 times the density of hydrogen, so that its atomic weight must be either four or two. The Upsala gas would thus come into the wide gap existing in our lists of elements between hydrogen, whose atomic weight is taken for a unit, and lithium, whose atom is seven times heavier than the atom of hydrogen.[1] On the other side, Mr. Lockyer has obtained the new gas by another method, from another mineral of the same group, bröggerite; it was associated with hydrogen, but, like Cleve's gas, contained no argon. The same brilliant yellow line of helium shines in the spectrum of the bröggerite gas, in company with several other lines which were known in the spectrum of the sun's chromosphere, but had never been seen before in the spectra of terrestrial objects.[2] It appears, moreover, from a second and third communication of Mr. Lockyer to the Royal Society[3] that he has found traces of other solar gases mixed with helium, and that he expects to obtain by his method quite a series of gases, the spectral lines of which are associated with the spectral lines of the chromosphere.[4] At the same date we learned from Professor Ramsay that, while boiling clevéite in weak sulphuric acid, he obtained not only the gas supposed to be helium, but also argon devoid of some gas which is usually found in atmospheric argon, and which may be the cause of the high density of the latter. Three or four distinct gases have thus been discovered — or rather preliminarily pointed out by the spectroscope — while several more are already in view.

We thus stand on the threshold of most important discoveries which are sure to throw much light on the chemical processes going on on the surfaces of the celestial bodies, and certainly will endow the physics of the sun and the stars with important generalizations; while on the other side the discovery of one or perhaps two gases, possessed of low atomic weights, which have hitherto been vainly sought for, will undoubtedly free our chemical classification from an incertitude which has prevailed till now. And, finally, the theoretical questions arising from the properties of argon, and even from the very errors which may have been made during the earlier hypothetical period of discussion, are sure to launch physics and chemistry in a new domain of philosophical speculation. This mass of discoveries, rapidly following each other, may seem bewildering; but they were not unexpected. For years chemistry had cautiously perfected its methods, and minutely accumulated new data in a limited circle of facts. Now, the fruits of that laborious work are rapidly ripening. "Are we facing a new period in chemistry?" Cleve exclaimed at the end of a letter in which he announced his discovery. Undoubtedly we are entering a period when both our knowledge of facts and our theoretical views in chemistry will be immensely widened.

[1] Mr. Ramsay has found that his gas (obtained from a mixture with argon) has a density of 3·89, and the same monatomic structure as argon, or at least the same ratio of specific heats.

[2] Proceedings of the Royal Society, April 25, 1895; *Nature*, May 2, 1895, vol. lii., p. 8.

[3] *Nature*, May 10, 1895, vol. lii., p. 56.

[4] The fact of several chromosphere lines being seen at the same time is the more important, as Professor C. Runge, armed with one of the best spectroscopes, maintains (in a letter dated May 16, and published in *Nature*, June 6, 1895) that the yellow line obtained from clevéite is not at all the helium line, but consists of two lines situated on both sides of the latter. Up to this date (June 19) the contradiction between such authorities in spectroscopy as Runge, Crookes, Lockyer, and Thalén has not been explained in the press; but the concurrent appearance of several chromospheric lines leaves little doubt as to discovery of gases which prevail in the atmosphere of the sun.

III.

We live in an atmosphere which is loaded with electricity. When heavy storm-clouds obscure the sky, and, taking those yellowish tints which are characteristic of electrified vapors, send towards the earth immense sparks of lightning, the electricity in the atmosphere becomes visible. We may also collect it in the way Franklin and Buffon used to collect it, by means of kites launched high in the air, and study it in the laboratory. Again, when cold weather sets in over the dry plateaus of Siberia or America, the air becomes so permeated with electricity that a fur coat, thrown off in the obscurity, glitters with crepitating sparks. But even in cloudless weather in western Europe, if the naturalist walks about with a portable electrometer, and measures the density of electricity in the air, as Lord Kelvin did many years ago, when he repeated Pouillet's experiments on the seabeach of the Island of Arran, the continual changes in the instrument's indications will show that masses of highly electrified air are continually wafted along by the gentle breezes at a certain height, and thus transport and distribute electricity in the atmosphere. And, finally, the electrometers which have been installed at many observatories — partly with the hope that their indications would be of some help in the prediction of local storms and rains — show that at every moment of the day the charge of electricity contained in the atmosphere is changing, so that even at two spots situated near to each other the indications of the instruments may vary in the most capricious way.

That the electricity which we find in the atmosphere may originate from various sources — from the evaporation of water which is continually going on on the earth's surface, from the unequal heating of superposed strata of air, from vegetation, and even from chemical changes which go on on the surface of the earth — was pointed out long since ; and the relative importance of these different causes has remained a subject of controversy for the last seventy years ; but it is only now that our ideas upon the whole subject begin to take a definite shape.

A few years ago, two Austrian meteorologists, Elster and Geitel, intending to study the distribution of electricity in the atmosphere at different heights, inaugurated a series of simultaneous measurements, at the observatory which is planted on the top of the Sonnblick (a high peak of the Tyrolean Alps), and in a valley at the foot of the peak. They had, however, to realize to their regret that their comparative measurements were a failure, because a waterfall which runs in the valley so much electrified the air around it, up to an altitude of sixteen hundred feet, that no comparison was possible between the low-level and the high-level observations. This unsuccess brought the question as to the electrifying powers of waterfalls again to the front, and Herr Lenard undertook a series of observations on their electrical effects in Switzerland.[1] It appeared that, to say nothing of large waterfalls, even the small ones, a few feet high, send into the air considerable charges of electricity, provided they bring down a large amount of rapidly dashing water. The smallest jets of water, which drip on the rock sides, and even roaring streamlets, have the same effect ; while above the surfaces of quiet lakes no electrification of the air was detected, notwithstanding the constantly going on of evaporation. In further prosecuting his researches, Lenard came to the conclusion that the current theory which explains electrification in the neighborhood of waterfalls by the inductive action of the positive electricity which is usually spread in the air during fine weather, is not supported by observation. He also remarked that neither evaporation nor the mere rushing of water drops through the air would explain the phenomena, and that the chief cause of electrification of the air is the tearing asunder of the drops of

[1] Wiedemann's Annalen der Physik, 1892, Bd. xlvi., p. 584 *sq.*

water as they fall upon the wet rock surfaces at the bottom of the waterfall. From these shocks electricity originates, and while the surrounding air is loaded with negative electricity, the spray of water which rises at the foot of the waterfall is electrified positively. Laboratory experiments further confirmed this view. The amount of electricity developed by the mere passage of a jet of pure water through air, or when water glides upon an inclined smooth surface, is insignificant. The drops must fall upon a hard wetted surface and break into minute droplets, in order to develop electricity. It appeared, moreover, that a slight addition of common salt to the water was sufficient to totally modify the effects, and to electrify air with a positive charge instead of a negative.

Lenard's observations and experiments thus give a new meaning to the experiments by which Lord Kelvin and Messrs. Maclean and Goto lately proved that air, even absolutely dust-free, can be electrified by a jet of water. By letting such a jet run for months within a vat inverted over a large wooden tray filled with water, so that all possible dust was eliminated, it was proved that air was electrified, and that it retained its charge for a certain time.[1] It was also shown — and this is of great importance for the knowledge of atmospheric electricity — that the above source of electrification is by no means insignificant. It may be such as to bring masses of air and cloud into motion with nearly the same energy as they are moved about by differences of temperature.[2] The amount of electricity which is sent in this way into the air is immense, and thus some support is given to the ideas developed by Planté and his follower Dary, and partly Palmieri, who maintained long since that atmospheric electricity must be one of the great causes disturbing the equilibrium of the strata of air.[3]

The importance of these facts in the economy of nature is self-evident. The supply of electricity in the air is continually renewed. The waterfalls in the valleys, the splashing of the waves on the shores of the lakes and rivers, and the splash of drops of rain on the ground send masses of negative electricity in the air; even the watering of our streets and of our plants in the orchards has the same effect on a limited scale. On the other side, the waves of the sea, as they break against the rocks and fall back in milliards of droplets upon the beach, supply the air with masses of positive electricity, the amount of which rapidly increases after each storm. And when we stand on a sea-beach, we not only inhale pure ozonified or iodized air; we are, so to say, surrounded by an electrified atmosphere which, as already remarked by Humboldt and often confirmed since,[4] must have a stimulating effect upon our nervous activity as well as upon the circulation of sap in plants.

It might be presumed that the generation of electricity which, we now see, takes place when drops of water strike the surface of the rocks, or of water itself, is due to a mere mechanical action; and Lenard (who expresses his views in the old language of the two electric fluids) represents this action in such way: each drop is coated with a double envelope of positive and negative electricity; but when it falls upon an obstacle, its outer negative envelope is knocked off, and part of the negative electricity goes to the air, while the

[1] "Electrification of Air by a Water Jet," by M. Maclean and M. Goto, *Philosophical Magazine*, August, 1890; Lord Kelvin's "Preliminary Experiments" in British Association Reports, Oxford, 1894; "On the Electrification of Air," by Lord Kelvin and M. Maclean, in *Philosophical Magazine*, 1894, vol. xxxviii., p. 225; Proceedings of the Royal Society, May 31, 1894 (*Nature*, l. 280); February 21, 1895 (*Ibid.*, li. 495); March 21, 1895 (*Ibid.*, li. 573); "On the Electrification of Air," a communication by Lord Kelvin to the Philosophical Society of Glasgow, March 27, 1895 (*Nature*, May 16, 1895, vol. lii., p. 67).

[2] Paper read at the Royal Society, on May 31, 1894 (Proceedings of the Royal Society, and *Nature*, vol. l., p. 283).

[3] L. Palmieri, "Legge ed origine della electricità atmosferica," Naples, 1882; Geo. Dary, "L'électricité dans la nature," Paris, 1892. The electrical origin of earthquakes, also advocated by Planté, can evidently be admitted in a roundabout way only, through disturbances of pressure.

[4] Kosmos, Stuttgart, 1845, bd. i., p. 261.

drop remains laden with a preponderating positive charge.[1]

However, matters appear to be much more complicated than that. Chemical action, as well as physical action, intervenes, as has recently been proved by Professor J. J. Thomson. Viewing the subject in connection with all his previous work, the Cambridge professor has had the happy idea of extending that part of Lenard's experiments in which he endeavored to ascertain the effects of water containing different substances in solution being let to drop through different gases. It became at once apparent that the chemical constitution of both the drops and the surrounding gas was of first importance for the phenomena in question.[2] When drops of pure water were left to fall through an atmosphere of water vapor — all air having been carefully eliminated from both the water and the surrounding vapor — there was no separation of electricities and no electrification; but the water vapor was electrified as soon as some air was admitted into the vessel. The same occurred when chlorine water dripped through chlorine; it gave no electrical effects. Electrification was, on the contrary, quite manifest when pure and airless water was dripped through some other gas, *e.g.*, hydrogen, or when weak solutions of various substances were used instead of pure water. With solutions of organic substances, such as phenol, acetic acid, and so on, the electrifying effects were even more apparent. In short, a difference between the chemical composition of the liquid and the gas through which it dripped was required to produce a disengagement of electricity. Moreover, when the temperature of the dripping water was raised within certain limits, the electrification was rendered still more intense — a great variety of effects being obtained by varying both the substances dissolved and the surrounding gases, and the temperatures of both.

[1] Wiedemann's Annalen, 1892, Bd. xlvi., p. 584 *sq.*

[2] On the Electricity of Drops, in *Philosophical Magazine*, 1894, series 5, vol. xxxvii., p. 371 *sq.*

The conclusion which Professor J. J. Thomson draws from these most suggestive experiments is of paramount importance for both this special subject and the theory of electricity altogether. The electrification of a gas, in his view, is not a mere mechanical process. It is a chemical or a quasi-chemical process which goes on within the molecules of the gas.[3] Part at least of the molecules of the electrified gas must be split up into atoms, or at least the atoms must be temporarily dissociated as they enter into a new combination, in order to give up electricity. It is therefore the atoms of the gas, not its molecules, which carry electricity; a molecule of a gas, Professor Thomson maintains, cannot be electrified.[4]

To the general reader this distinction between atom and molecule may seem irrelevant; but it touches upon one of the vital questions in the theory of electricity, while it aids us, at the same time, to understand various phenomena which formerly were beset with difficulties. To take an illustration from a more special subject, we may see how Professor Thomson's views help to explain the formation of larger drops in an electrified steam jet. We know that the electrification of a steam jet favors the formation of large drops within the steam; we see it from its sudden change of color under the electrical discharge. But Lord Kelvin showed, some time ago, why it is so difficult for small drops to grow large without the aid of either electricity or of dust in the air. The enormous tension to which the water molecules are submitted on the surfaces of the very small droplets results in the immediate evaporation of the latter. As soon as they have originated, they must die. They may survive only if they find particles of dust round which they may grow — a London fog being an excellent illustration of the aid given by smoke to the formation of larger drops. Or else electricity must come to their aid.

It appears, however, from J. J.

[3] *Philosophical Magazine*, October, 1893, vol. xxxvi., p. 313 *sq.*

[4] Letter to *Nature*, July 26, 1894, vol. l., p. 296.

Thomson's mathematical treatment of the subject, that, if electrification were distributed *equally* through the steam, it could have no such effect. It must be *unequally* distributed, and this, Professor Thomson maintains, is really the case, because electricity originates from a number of dissociated and therefore electrically loaded atoms which are scattered through the space occupied by the steam. Unequal electrification diminishes the surface tensions in small droplets and permits them to grow into larger drops. This is, then, the process by means of which electricity intervenes in the formation of the heavy yellow tinted clouds which we see when a thunderstorm is coming, and we obtain thus the cue to most familiar phenomena which hitherto it was most difficult to understand.[1]

As to the general bearing of Professor Thomson's ideas, it is sufficient to say that they make part of a great body of doctrine which endeavors now to bring science to consider electricity and chemical action as two moods of the same energy. Immense progress has been achieved during the last fifteen years in the elaboration of this theory which Helmholtz had so brilliantly summed up in 1881 in a Faraday lecture delivered before the Chemical Society. But, in order that these views should become generally accepted, they must be brought into connection with the dynamic views on electricity developed by Faraday, Maxwell, and Hertz, and in his lecture Helmholtz spoke of his intention of so doing. Unhappily, he was lost to science before he had accomplished this great task, and none of his followers has yet undertaken it. Perhaps a greater accumulation of facts and a deeper knowledge of electricity are required before science can be endowed with this further generalization.

[1] Professor J. J. Thomson's theory also explains why chemical changes taking place in the neighborhood of a steam jet aid in the formation of larger drops. If we admit that the forces which hold atoms together in a molecule are electrical in their origin, we understand that when the atoms enter into new chemical combinations there is an interval, during which they are comparatively free, and exercise an electrical action upon the surrounding matter. Electrification originates in this case from the chemical changes, and it acts in the above-described manner.

IV.

NOTHING can be more welcome for the future development of physical geography and science generally than the renewal of interest in antarctic exploration which is now witnessed all over Europe. The fiftieth and last volume of the Challenger reports being now out, and the results of this epoch-making expedition, which has so much enriched our knowledge of the oceans and of their physical and organic life being now published in full, the leading scientific bodies of this country have already taken the initiative of a new expedition.[2] The Royal and the Geographical Societies, as well as the British Association, insist upon the necessity of the vast domain of antarctic seas and continents being explored by a well-equipped expedition consisting of two ships built on purpose for cruising amidst the ice. Belgium is already sending out an antarctic expedition. And as to the Swedes, they not only have received with enthusiasm, and at once subscribed the funds for, S. A. Andrée's scheme of exploring the north polar regions in a balloon;[3]

[2] The Challenger's scientific staff have collected during their three years' cruise (1872–76) such a mass of precious materials that it took nineteen years of work in the laboratories and the map-rooms to properly interpret them. Forty volumes of this monumental publication are given to organic life.

[3] The idea of exploring the north polar regions in a large balloon, which would start from Spitzbergen with three aëronauts on board, and, taking advantage of a southern wind, would cross the north polar regions, was proposed by S. A. Andrée in a communication to the Paris Academy of Sciences (*Comptes Rendus*, April 29, 1895, tome cxx., p. 893), and a committee of the Academy has since favorably reported upon the scheme, while the one hundred and thirty thousand kronor which are necessary for the expedition were at once subscribed in Sweden. The scheme is based on the supposition that a balloon filled with hydrogen would retain its buoying capacity for one month, and the captive Giffard balloon of the Paris Exhibition of 1878 is quoted as an example in point. This last affirmation originates, however, from a misunderstanding, because the heating of the Giffard balloon under the rays of the sun, and the consequent loss of gas, were such as to render re-

they also direct their efforts southwards, and a nephew of Nordenskjöld starts next autumn for antarctic exploration. Besides, the necessity of antarctic exploration has been fully discussed at the German Geographical Congress in April last, and the International Geographical Congress, which meets by the end of July at London, will resume the same discussion. And in the mean time a daring Norwegian seal-hunter and a Swedish whaler have already made the first steps towards a reconnoitring of the antarctic continent, while a couple of years ago an effort was made in this country to utilize the cruises of four Scotch whalers for some scientific observations in the same regions.

For the last fifty years the exploration of the seas surrounding the South Pole has fallen into total neglect. All efforts have been directed towards the north, and since the times of James Ross and Hooker no scientific expedition has cruised in antarctic waters. True, that those who went northwards and wintered in North Greenland, Spitzbergen, and Franz Joseph's Land, or even on the northern coasts of Siberia, returned home with such admirable results that all the temptation was on this side. They brought in wonderful collections of northern flora and fauna and of fossils, upsetting all current ideas relative to the distribution of climate and organisms. Their notebooks were filled with important observations in all branches of the physics of the globe; and they had to narrate the most fascinating or touching stories of endurance and tenacity of purpose, of successes and privations. When they described the fairy scenes of nature plunged in the arctic night, or awakening under the first rays of the long missed sun, one understood how deeply impressed they had been by northern nature — what an imperishable love for it they all had brought from the north. Each wintering in those regions not only immensely enriched science, and widened our conceptions of nature, but even the artist returned so much inspired by the melancholy but by no means gloomy northern landscape that we now see Julius Payer, dissatisfied with his own beautiful paintings, starting again with an artistic expedition to the far north, in order to paint that nature on the spot with all its vivid colors and life.[1] Nothing of the sort is found in the rather dreary journal of the last antarctic explorer, the younger Ross, who spent the three summers of 1841–1843 in most wearisome working through the ice pack, and in cruises at the foot of a formidable ice wall, without even daring to land for more than a few minutes on two minuscule islands of the part of the continent which he had discovered. An exaggerated idea of the difficulties and uselessness of antarctic exploration had thus been created in the public mind.

This gloomy view is, however, already modified to some extent by the experience gained during the last two years. In November, 1893, the Norwegian seal-hunter, Captain Larsen, on board the small steamer Jason, approached Graham Land, *i.e.*, the extremity of the antarctic continent which is pointing towards South America, and is separated from it by a distance of only four hundred miles. He sailed along its eastern coast, formerly quite unknown, and ascertained its position for full three degrees of latitude, up to the sixty-eighth degree. He also found no difficulty whatever in landing twice[2] — he and his mate having only one regret — that they

filling necessary almost every day (G. Tissandier, in *Comptes Rendus*, May 6, 1895, tome cxx., p. 997). However, it must be borne in mind that in polar latitudes there is no such difference of temperatures during day and night as we have in middle Europe, to say nothing of improvements upon Giffard's balloon which are sure to be made.

[1] Payer's paper, An Artistic Expedition to the North Pole (*Geographical Journal*, vol. v., February, 1895), gives an excellent idea of nature in the north. Mr. Burn Murdoch, an artist who cruised on board the Dundee whaler Balæna, is equally enthusiastic of what he has seen in the Antarctic Seas (From Edinburgh to the Antarctic, London, 1894).

[2] On the island which makes Cape Seymour, and on the mainland at Cape Framnes; also on Christensen Island (*Geographical Journal*, October, 1894, new series, vol. iii., p. 333 *sq.*).

were on a seal-hunting voyage, and not on a scientific expedition, and thus could not have a run inland over the glaciers which flow amidst not yet extinct volcanoes. Even Victoria Land, which seemed so inaccessible to James Ross, was visited at Christmas and New Year last by the Swedish whaling steamer Antarctic. Following the very track of Ross, the Swedes fought for thirty-eight days their way through the girdle of pack-ice which defends the access to Victoria Land, before they reached the ice-free Ross's sea; and if they went in that sea no further than the seventy-fourth degree, it was simply because "no whales appearing," they steered back.[1] On their back journey in the later part of the summer, they even found the ice girdle sufficiently loose to make their way through it in six days. Happily enough, they had a naturalist on board; that is, to tell things as they were, C. E. Borchgrevink, one of the enthusiastic naturalists whom Sweden owes to its arctic expeditions, wanted by all means to catch a glimpse of the antarctic regions, and as he could not be taken on board the whaler as a naturalist, for lack of accommodation, he went as a simple sailor, and of course, as may well be expected from Torell's and Nordenskjöld's countrymen, obtained from the crew every possible assistance for scientific work. From him we know that no difficulty whatever was found in landing, first on Possession Island — the very island upon which Ross landed only to take a nominal possession of the discovered land — and next at Cape Adare, on the mainland, which never before had been trodden upon by man's foot.

We may thus feel sure that the explorers of these new grounds will find no greater obstacles in their way than those which have been successfully overcome by so many arctic travellers. And if the aim of the expeditions is not a race for beating the record in the approach to the pole, but scientific exploration, the experience of the Swedish expeditions, as well as of Parry and John Ross, is there to prove that the greatest scientific results can be, and usually are, achieved without having losses of human life to deplore.

That a scientific exploration of the antarctic regions would immensely increase our knowledge in nearly all branches of physical geography, meteorology, biology, and so on, is almost self-evident.[2] The Challenger expedition has shown how knowledge can be increased through the careful exploration of pretty well known regions, while in the far south every step would be made on a nearly quite unbroken ground. But there are certain problems of science, of exceptional importance under the present state of knowledge, which can only be solved in the southern circum-polar regions — nowhere else — and which deserve a special mention. One of them — the necessity of a magnetic survey — has been fully treated by Dr. Neumayer,[3] and by the Antarctic Committee of the Royal Society. As is well known, an exact knowledge of the position which the magnetic needle assumes at every spot of the earth's surface — that is, of the angle it makes with the meridian and the horizon — as well as of the force with which it is attracted in the direction of the magnetic poles, is of the first necessity both for the theory of earth magnetism and for the practical requirements of navigation. Special magnetic maps, based on as large as possible a number of direct observations, are calculated and drawn for this purpose, and many physicists — Dr. Neumayer, Captain Creak, Professor

[1] The *Geographical Journal*, June, 1895, new series, vol. iv., p. 583 *sq.* It took Ross forty-eight days to make his way through the same girdle of ice, which proves that last year's season was not exceptionally favorable.

[2] For a brief analysis of what may be done in these directions, see Mr. Murray's paper, "The Renewal of Antarctic Exploration," in the *Geographical Journal*, January, 1894, vol. iii., p. 1; the "Report of the Antarctic Committee, 1893-94," of the Geographical Society, and the "Report of the Antarctic Committee of the Royal Society." For the right of utilizing this last I owe my very best thanks to the Council of the Royal Society.

[3] The *Geographical Journal*, January, 1894, pp. 37-42, gives a list of the several corresponding works of Dr. Neumayer.

A. W. Rücker, H. Wilde, and many others — have lately taken great pains in reconstructing anew, for the whole of the earth's surface, or for large portions of it, the magnetic maps which had been constructed by Gauss in 1839. However, all these investigations meet with one hitherto insuperable obstacle. We know well the elements of terrestrial magnetism for the northern hemisphere, as also for the southern hemisphere as far as the fortieth degree of latitude; but beyond this line we have an immense gap — thirty-five hundred miles each way from the South Pole — which can be filled by no amount of mathematical speculation. More than fifty years ago Ross made a magnetic survey of the antarctic seas; but his data are no longer available, because it is now known that the variation in terrestrial magnetism, which takes place from year to year, proceeds very irregularly in many localities;[1] we know that changes have taken place in the magnetic elements south of the fortieth degree of latitude, but there is no means of ascertaining with any accuracy the extent of these changes.[2] It is evident that nothing short of a new magnetic survey of the antarctic regions can remedy this evil, or give the necessary data for revising the current theory of revolution of the magnetic poles, which badly needs revision. To use Dr. Neumayer's words, without such a survey "it is an utterly hopeless case to strive with prospects of success at the advancement of the theory of the earth's magnetism."

The same is true as regards the modern investigations into the exact shape of the earth. Formerly we could be satisfied with representing the earth as a ball slightly flattened at its poles — the flattening being supposed to follow the curve of an ellipse. But now geodesists discover that the earthball has considerable irregularities of shape, both local and general, towards the poles; and as the earth's diameters are the basis of all measurements in astronomy, they spare no efforts to measure accurately these irregularities. Precise methods were lately elaborated for utilizing pendulum swingings as a rapid and sufficiently exact means for measuring the local deviations in the earth's surface from the ideal shape. But all efforts stumble against the absence of data from the southern hemisphere. *Seven* pendulum measurements are all that we have beyond the fiftieth degree of southern latitude, and none was ever made within the antarctic circle. Three or four pendulum observations in Graham and Victoria Land would therefore be of a much greater value for geodesy than ten times as many observations elsewhere. Besides, we know that the earth's crust is not quite rigid, and there are good reasons to suppose that it yields to a certain extent under great accumulations of alluvial deposits, as well as of ice and snow,[3] such sinkings being possible causes of submergence of large continental areas. But, again, the only means of ascertaining in how far these views are correct is to make a series of pendulum observations in different parts of the antarctic continent.

And, finally, there is the immense question as to the origin of the present floras and faunas and their relations with the distribution of plants and animals during the tertiary age, which now excites naturalists, and again can only be solved by an exploration of the antarctic continent. This latter question is so important in itself that it cannot be treated here incidentally, and may best be discussed separately on some future occasion. Its substance, however, and its bearing upon antarctic problems can be indicated in a few words. It is well known that the present floras of different portions of the earth offer such peculiarities, both in the plants which they possess in com-

[1] See Professor Rücker's excellent presidential address before the British Association in 1894, on the subject of magnetic variations.

[2] Report of the Royal Society's Committee, pp. 1, 2.

[3] See W. MacGee in *American Journal of Science*, 1892, third series, vol. xliv., p. 177 *sq.*; and Drygalski in *Zeitschrift der Gesellschaft für Erdkunde zu Berlin*, 1887, Bd. xxii.

mon and in those which they differ in, that, after having paid a tribute to different hypotheses, naturalists came to look for the origin of the present floras of Europe, America, and Asia in the rich vegetation which covered the arctic and sub-arctic zone during the tertiary period. The thousands of specimens of tertiary vegetation which have been unearthed from the peat bogs of Greenland, Spitzbergen, New Siberia, and so on, leave not the slightest doubt about the north polar archipelagoes having been covered during the miocene period with trees and herbaceous plants, which must be considered as the ancestors of the plants now covering Europe, America, and Asia. We find the flowers and the fruits of these trees, shrubs, and herbaceous plants in the peat bogs of the far north, and we unearth the very insects which fertilized the flowers. From this flora, which was repulsed to the warmer zones during the glacial period, and afterwards partially reconquered its former abodes after glaciation was over, all our present floras of the northern hemisphere originate.

So much may be taken as granted. But a series of recent researches have brought naturalists to inquire whether there was not, during the tertiary age, an expansion of land in the antarctic zone as well; whether what is now a dreary desert of ice, amidst which high volcanoes only give sign of life, did not also enjoy a warm climate, and was not the land wherefrom the present vegetation of the southern extremities of our continents has originated. This very difficult question, which Darwin was inclined to answer in the affirmative, is now the subject of an animated controversy among naturalists; but it is evident that it will receive no definite solution so long as we remain completely in the dark as to what the antarctic continent was during the tertiary age.

Some time ago the prospects of finding traces of tree vegetation in these frozen regions were extremely small. Hooker saw no traces of vegetation on the barren rocks of Victoria Land, and we now learn from Borchgrevink that the discovery of one single lichen on Cape Adare already filled his heart with joy.[1] However, on the other extremity of the antarctic continent, Graham Land seems not always to have had the same barren aspects as it has now. No sooner had Captain Larsen set his foot on Seymour Island (at the northern extremity of Graham Land) than he was struck with the amount of petrified wood which was scattered about; and it appears from the specimens of fossil coniferous wood and shells he has brought home, that both probably belong to the lower tertiary period.[2] This discovery alone is sufficient to raise the best hopes as to the possibility of finding the cue to the floras of the southern hemisphere in the icy deserts of the antarctic continent; and if such discovery is really made, it will settle at once a grave problem which naturalists might discuss for years without coming to any definite solution.

We thus have three important problems, in geodesy, earth magnetism, and geographical distribution of plants and animals, which cannot be solved otherwise than by an exploration of the lands situated within the antarctic circle; and several problems of less importance might be mentioned in addition. But we need not further dwell upon the scientific aspects of antarctic exploration (which are sure to be fully discussed by the end of July at the Geographical Congress), the more so as there is one more remark to be made. Those who have followed the development of arctic exploration for the last thirty years, since it took a

[1] It must be remembered that in arctic regions the want of a proper soil is perhaps a greater obstacle for the development of vegetation than the rough climate. Wherever a protected nook, where some loam could have been formed, was found, even on the east Greenland coast (which is also protected by an ice girdle like Victoria Land), vegetation by no means poor was discovered. The same will probably be found on the antarctic continent.

[2] The shells bear a close resemblance to species known to occur in the lower tertiary beds of Britain, as well as to other species of about the same age found in Patagonia (Murray, *l.c.* p. 11, note).

thoroughly scientific character in the Swedish expeditions to Spitzbergen, must have been struck by the deep influence which these expeditions have exercised in Scandinavian lands upon the growth of science and the development of taste for science altogether in wide circles. Swedish and Norwegian science (which by no means receives in west Europe the attention it really deserves) may be considered without exaggeration as a daughter of the Spitzbergen expeditions and of Nordenskjöld's journeys in search of the north-eastern passage. The names of Swedish and Norwegian scientific men which are well known at the present time to every student of science are all names long since familiar to the readers of arctic literature ; they appeared for years past, either among the members of those expeditions, or among persons who took part in the scientific discussion of their results. Quite a phalanx of men of science has grown out of these expeditions. And at the same time a general interest in, and a remarkable taste for, scientific research have been widely spread in the two countries. The admirable popular account of the Spitzbergen expeditions and their scientific work, written by Chydenius, was read far and wide in Sweden and Norway ; it was — we know it — a most popular book among the whalers and seal hunters ; and they have read it with profit, as may be seen from the services they have rendered in the discovery of the north-eastern passage. Before the year 1870, all Russian geographers were persuaded that the Kara Sea, which lies between Novaya Zemlya and the Siberian coast, on the way to the Siberian rivers, was quite impracticable on account of the ice with which it is stocked. It was known to us as "the ice cellar." But that year a Norwegian whaler, Captain Johannesen, peeped into the Kara Sea, and, finding the entrance free, he steered straight forward and cruised in the ice cellar without incumbrance. Next year half-a-dozen small Norwegian schooners rushed into the newly opened sea ; and, as their captains were already aware of the importance of arctic exploration, in consequence of the wide interest in that sort of research which was spread by the Spitzbergen expeditions, Mohn, Nordenskjöld, and Petermann found no difficulty in instructing them in what had to be done. In one summer the Kara Sea, which had not been navigated for the last three hundred years, was explored in all directions ; soundings and surface temperature measurements were taken ; the wintering place of Barents, at the northern extremity of Novaya Zemlya, which had not been revisited since the sixteenth century, was reached ; and one or two seal hunters dashed eastwards, saw an open sea, and proved the possibility of easily reaching the Obi. The north-eastern passage was rediscovered, and Nordenskjöld at once found support in his country for reaching twice the mouth of the Yenisei, and finally for circumnavigating Asia. Never, in any other country of the world, did science, spirit of adventure, and commercial pursuits so admirably well go hand in hand. In no other country would that have been possible, not even in Scandinavian lands, before the Spitzbergen expeditions took place.

And now it is certainly not a simple coincidence that the first steps towards the exploration of the antarctic seas and continent have also been made by Norwegian and Swedish whalers. In fact, one cannot read Larsen's journal, simple as it is, nor witness Borchgrevink's enthusiasm, and Svend Föyn's enterprise, in manning the Antarctic, without realizing that a whole atmosphere of interest in arctic matters and taste for them was created on the Scandinavian peninsula by the *scientific* exploration of the arctic regions — an interest which, so far as the last few years' experience goes, seems not yet to exist among Scotch whalers.

For science, antarctic exploration will prove invaluable. As to society at large, it has all to win if the spirit of enterprise is directed towards regions where there are no natives to conquer, but where there is very much to endure

for a disinterested purpose, and so immensely much to be learned about the physical life of the globe under all its aspects.

From Blackwood's Magazine.

A BOER PASTORAL.

IT is dim early morning, and upon the vast plains of Great Bushmanland, in the far north-west of Cape Colony, the air blows fresh and chill, though the land is Africa, and the time summer. At 4.15 precisely, the bright morning star shoots above the horizon, and rises steadily upward in a straight, rocket-like ascent.

Now a ruddy coloring tinges the pale grey of the eastern sky, to be followed by broad rays in delicate blues and greens that strike boldly for the zenith. The changes of dawn in Africa are swift and very subtle. Presently these colors fade, and a pale, subdued light rests upon the earth; the air is full of a clear but cold brightness. Soon follows the full red-orange that so gorgeously paints the eastern horizon and closely foreruns the sun, and then suddenly the huge burning disc itself is thrust upon the sky-line, and it is in South African parlance "sun-up."

The plains here stretch in illimitable expanse to the horizon. Far to the west is a range of mountain forty good miles away, which in the clear morning air stands out as sharply as if but a dozen miles distant. You may see the dark lines and patches of the time-worn seams and krantzes that scar its sides. This translucency of atmosphere is very common in South Africa.

The rains have lately fallen, and everywhere around the dry plains have started at the breath of moisture into a splendid if short-lived beauty. Miles upon miles of flats, all glowing and ablaze with purple and a rich flame-like red, are spread around. The wonderful compositæ are in flower, and the barren desert-like flats are for a few brief weeks transformed into a carpet of the noblest coloring and pattern. Look closely and you may see the bleached and blackened limbs of former growths of low shrub which stand amid the gallant blaze, gaunt reminders of the transitory existence of African flower life.

Near at hand lies a *vlei*, a shallow temporary lake recruited by the recent rains. At the end of this *vlei*, farthest removed from the group of wagons outspanned there, is gathered at this early hour a notable display of bird life. Duck, geese, widgeon, and teal are there cackling and crying in a joyous plenty. Stints and sandpipers whirl hither and thither, and graceful black-and-white avocets, with their singular upturned slender bills, and long red-legged stilt-plovers, haunt the shallows. Upon the plain some small birds have been afoot some time. You may see and hear the lively, inquisitive Jan Fredric thrush, with his pleasing song and his curious note, "Jan-fredric-dric-dric-fredric." He is racing swiftly hither and thither through the shrub and flowers, bustling for his food supply. There, too, are the thick-billed lark, the Sabota lark, with its clear, ringing call, and a few other — but not many — small birds. Aloft an eagle is already on the move, and a hawk or two, no doubt meditating descent upon some of the wild-fowl on the *vlei*. Out upon the plains, half a mile distant from the wagons, are to be seen a knot or two of graceful springbok busily feeding in the choice herbage. But now there is a stir at the wagons yonder. For half an hour past "Cobus," a little wizened Hottentot, has been busy blowing up the embers of the half-dead fire and making coffee for the *baas* and *meisje*.

From the biggest of the wagons descends a vast, uncouth figure, that of Klaas Stuurmann, the Trek-Boer. Almost at the same moment the *achterklap* (flap) at the hinder part of the wagon is thrown back, and the figure of a young woman, rather dishevelled — for, like her father, she has been manifestly sleeping in her day-clothes (night-clothes they have none) — descends. The two approach the fire,

greet one another in stolid, almost mute fashion — the father kissing impassively the girl's proffered cheek — and then, standing, they drink the coffee handed to them by the little Hottentot man, and eat a few mouthfuls of bread. Watch them well, these two figures; they are the representatives of a type slowly disappearing from the Cape Colony — the race of Trek-Boers, nomads, who for generations have had no home but their wagons, and who live (more often than not from absolute choice) the free, vagrant life of the *veldt*, with their flocks and herds around them.

The man, Klaas Stuurmann, is a Boer of loose, ungainly frame. He stands six feet one, is about fifty-two years of age, has a broad, deeply tanned face, in which are planted two watery-blue eyes, a shock of hay-colored hair, and a long beard of the same uninteresting hue. He wears *veldt-broeks* (field-trousers) of soft home-tanned skin; he is about the last Dutchman in Cape Colony to use these old-world garments; but his father and grandfather wore such clothes, and they are good enough for him. He has no socks or stockings, and a pair of rude, home-made hide *velschoens* cover his feet. He has a flannel shirt to his back, and over that a short jacket of much worn corduroy. Upon his head is the usual tall-crowned, broad-brimmed felt hat, which carries a hideous band of broad rusty crape in memory of his deceased wife. The man's face is dirty, to be sure, but besides the dirt there is a dull, vacant, unthinking look rather painful to see; it is the look of one bred through dull, listless generations of men, self-banished from their own kind, whose only interests have been in sheep and goats and trek-oxen, their only excitement an occasional hunt, or a scrimmage with Bushmen in time gone by. Such a listless and a vacant look you may see even now in some of the more remote *dals* of Norway, among the poorer of the peasant-farmer folk. It is the look of men who gaze always without a spark of interest upon the silent face of nature around them, and who for generations have seldom exchanged an idea with their fellows.

For one hundred and fifty years Klaas Stuurmann and his ancestors have led the wandering life of the Trek-Boer, knowing no hearth but the pleasant camp-fire, no roof but the glaring blue of the unchanging African sky and the tent of their wagons, no floor but the wild *veldt*. Many among the more settled Dutch farmers wonder how these uneasy nomads, with their shiftless ways and habits of unrest, first came to pursue such an existence. In the present instance it happened much in this wise. Klaas Stuurmann's great-great-grandfather, a restless spirit farming near the old settlement at Cape Town, became, like many others, tired of the petty and exasperating restrictions of the then Batavian governor. And so he trekked in search of fresh pastures, beyond the reach of taxes and monopolies. He was a sportsman, and the land opening before him disclosed the most wonderful and redundant fauna the world has ever seen. Still carrying his flocks and family with him, the Boer wandered from *veldt* to *veldt*, always in a country virgin to the hunter, and teeming with the noblest game.

Year after year went by, his family grew up around him — how, he himself would have been puzzled to explain — and still the open-air, hand-to-mouth existence pleased him, the splendid liberty and the free, unfettered chase in that vast crowded game preserve. At the beginning he sometimes cast his eye here and there in search of a farm, but somehow no *plaats* suited him. He wandered ever farther in search of his ideal, and finally the *veldt* life had so bitten into him that he preferred to live and die in it. If he wanted powder and lead, some coffee and sugar, or a piece of stuff for his wife's and daughters' gowns, or a new *roer* (gun) for his growing lads, he had but to trek with a load of ivory and feathers to "Kaapstad" (Cape Town) and get what he desired. For the rest the earth and her plenty sufficed to him. And so the years rolled on. The old

Karel Stuurmann died, and was buried near a fountain on the wild Karroo, and his sons and daughters became Trek-Boers, or the wives of Trek-Boers, after him. For many a year all went well; the game was still there to pursue; the land was lonely, yet pleasant; and the *verdoemed uitlander*[1] was as yet unknown. But presently came the British, and after them percussion-guns, and later the deadly breech-loader. The game began to vanish, the country became more settled, and, except for the remote wildernesses of the north-west, the Cape Colony was no longer the Trek-Boers' paradise. Slavery was abolished, and even the native servants, the Hottentots and Kaffirs — nay, even the captive Bush-boys, mere baboons the Boers called them, torn young from their slaughtered parents — could no longer be treated quite as of yore. Many of these Trek-Boers joined the emigrant farmers, and passed beyond the Orange and the Vaal rivers. Some of them helped to found the Orange Free State and Transvaal Republics; some of them still pursued the old wandering life, and as elephant-hunters dared the unknown wilds and the dangers of the remote regions towards the Zambesi. But still a leaven of them clung to the old Cape Colony. The life became ever more sombre and less alluring. The great game had gone; only the springboks and smaller antelopes remained to remind them of the teeming plenty of the brave days of smooth-bores and flint-locks. These Trek-Boers of the colony sank lower in the social scale; they had to depend only on their scant flocks and herds; their more settled and richer neighbors learned to look upon them with dislike and even hate, for the reason that they often, by means of their flocks and herds, carried disease — scab and lung-sickness and red-water — from one farm to another. And so in these latter days the Trek-Boer of the Cape Colony is looked upon as little better than the gipsy of Europe. Many of them are miserably poor; their flocks are reduced and deteriorated from disease and in-and-in breeding; their wagons are battered and dilapidated; they themselves look degraded and sunken and miserable. Some of them burn ashes from certain of the karroo bushes, and sell them to the settled farmers to make soap with. Some collect salt from the pans, and with a few springbok skins earn a trifle to eke out their wretchedness. Some few, like the Stuurmanns, still have decent wagons and fair flocks. But in the Cape Colony they are a declining race, and twenty or thirty years more will see the last of them. Yet even the poorest of them still retain their pure European blood, still lord it over their miserable native servants, and at times — perhaps thrice in the year — still trek to the nearest village for *Nachtmaal* (communion). And still the great Bible, more often than not two hundred years old, is carried in the wagon-chest and cherished. For these Trek-Boers of Cape Colony, the unpeopled solitudes of Bushmanland — that is, the northern portion of the divisions of Little Namaqualand, Calvinia, Fraserburg, and Carnarvon — bordering on the Orange River, are still a last stronghold. Here after the rains they can range freely with their flocks and pursue the trekking springboks and live the old wild life. Elsewhere, if they halt for the night on the farm of another, they must pay for the privilege, and a goat or sheep or two have to be handed over in exchange for pasture and right of water.

I have hinted at the darker aspect of the latter-day life of the Trek-Boers of Cape Colony. Let us glance at the more pleasant part of it.

Their coffee finished, Klaas Stuurmann moves to the temporary kraals, a hundred yards away, where his flocks are confined for the night. There are two kraals — one for the sheep, one for goats — and they are simply made of bush and branches of the acacia and wait-a-bit thorns, fashioned into a light ring-fencing, just sufficient to keep the flocks within and prowling hyenas and

[1] Accursed foreigner.

jackals without. Already the native herd-boys are there waiting for their charges; and the hungry kraal-denizens, knowing their breakfast-hour is nigh, bleat loudly for the near freedom of the *veldt*. The tall Dutchman now plants himself by the entrance of the sheep-kraal, from which a herdsman drags away the thorns. Forth flock the impatient sheep, and as their stream issues through the narrow exit, Klaas Stuurmann numbers them head by head. As a rule the Boer is a bad hand at figures; but in the necessary ancient custom of counting flocks night and morning, he can reckon with as much skill as any man. Practice makes perfect, and so Klaas Stuurmann finds no difficulty in taking his fleecy census fast as the sheep pass forth.

The sheep — six hundred head of them — are checked and found in order, and the same process is gone through at the other kraal, whence, to the number of eight hundred, the goats go forth in the ancient African fashion of five thousand years to pasture in the wild. The warm air, full of the rich aromatic scent of the *veldt* vegetation, now springing in its prime, comes alluringly into the nostrils of these nomadic flocks, and soon they are scattered upon the plain feeding vigorously, their silent, patient herd-boys tending them for the hot livelong day.

What do these dusky herd-boys think of, day after day, as they follow their flocks? Heaven knows! As well ask the bird and beast of the great plains what are their thoughts! Sometimes in the days of the Pharaohs there sprang a great warrior or statesman from the brown-skinned herdsmen and hunters of the far Land of Cush; nay, Egypt herself was ruled not seldom during those remote ages by almost pure Ethiopian blood. But nowadays there be no black Hampdens, or yellow Miltons, still less, possible Pharaohs, from among the lazy Kaffirs and poor besotted Hottentots of the Cape Colony.

Refilling his pipe from colonial tobacco, carried loose in his jacket-pocket, and relighting it, the big Boer moves massively back to his wagon, near which his daughter is busily engaged in a wash at the welcome *vlei*. There are three other wagons outspanned by the pool; one of them belongs to the Boer's two sons; one of them is inhabited by yet another Trek-Boer, whose *vrouw* is engaged in the same task of washing, and whose children — five of them — young, merry rascals, are playing in the strong sunlight upon the edge of the water.

Their voices sound pleasantly upon the sweet, warm air, and recall, even to Klaas Stuurmann's unimpressive mind, the younger days of his own children and his now dead wife. The recollection brings an unwonted tenderness to his rugged soul, and as the noisy imps, busy at their games of wagon-and-oxen, play and clamor about him, he goes to his wagon, opens his sugar-bag, fills a *kommetje*[1] with the dark-brown treacly stuff, and calls the tanned and ragged little company about him. Jan, Katrina, Hendrik, Gert, Jacobina, and the tiny toddling Jacie, all receive their morsel of the sweet-stuff — not without some awe and wonderment, for the grim, burly Boer man seldom unbends so far.

The oxen are feeding quietly round the *vlei*; the Boer's eye follows them with contentment, for water and the rich *veldt* have brought fat and sleekness to their great frames. His daughter's toilet catches his eye, and he watches the girl with an air of grave and secret pleasure, for she is the last survivor of three girl children, and by no means an ill-looking maiden in a Dutchman's eye. Cobus, the Hottentot, has brought an iron bucket from the wagon, and at the margin of the *vlei* he fills it with water for the *meisje*, who already has soap, a towel, and a comb. Taking off her sun-bonnet, she washes her face and hands, then, unfettering her stout plait of fair brown hair, she leans forward, and using the calm surface of the water as a mirror, combs out the somewhat tangled locks.

[1] A large teacup, devoid of handle, used by Boers.

Again the brown hair is coiled into a neat plait, drawn tightly from her temples, and her toilet is complete. As she ties on her sun-bonnet again the Boer comes up, pats her broad back, and looks admiringly at the now refreshened face. Two hundred years of South Africa have little altered the old Batavian type. The eyes are blue, but of small brilliancy, the cheeks too broad and flat for English taste, and the young figure is already stiff, waistless, and heavy. Yet in this far-off back-country women folk are scarce, and in much request, and already, at eighteen, Anna Stuurmann has found a mate. Next to her brothers' wagon there stands the wagon of her betrothed — Cornelis Klopper — who is just now away in the grass plains a little to the north, shooting springboks with the younger Stuurmanns. This wagon is newly repaired, smart, and gaily painted, and is destined in another month or two, after the flocks have been well recruited in the Bushman-land Trek-veldt, to become the home of the Boer maiden. The combined families are to trek to Calvinia village, where the marriage will take place, and thenceforth Anna becomes mistress of her own man and wagon.

His daughter's modest toilet complete, the big Boer dips a corner of the not over-clean towel in water, runs it carelessly over brow, cheeks, eyes, and mouth, dips his hands, and the trick is done. The proximity of cleanliness to godliness is no axiom of the Cape Dutch farmer, still less of the roaming Trek-Boer. A dry, parched land, and lack of water, have doubtless had a good deal to do with this trait.

At eleven o'clock, sitting in the shade of the sail suspended between two wagons, father and daughter partake, after a long grace, of the usual meal — pieces of mutton, swimming in sheep's-tail fat, boiled rice, coarse bread, and the eternal coffee, which, however, is just now, thanks to the sweet herbage, plenteously tempered by a supply of *bokke melk* (goat's milk). Again the big Dutchman lights his pipe, and presently, yielding to the heat and the effects of his meal, falls to sleep, sitting on the sand with his back against the wagon-wheel — a moving picture of pastoral listlessness, or, if you please, pastoral sloth. The hot day wears on. At three o'clock Anna mounts to the wagon-box, and, shading her eyes from the intense glare, scans the hot plain, now dancing and shimmering with mirage. The flocks have turned for home — she can hear the far-off tinkle of their bells, borne drowsily upon the warm air; but it is not the flocks she searches for. In another half hour she looks forth again. This time, far in the north, she picks out from the shimmer and tremble of the atmosphere a tiny cloud of dust. That is what she is expecting, and she now gives orders to the Hottentot and another boy to tend the fire, get the pot and pan in order, and fill the great kettle.

In a while you may catch the steady trample of galloping hoofs, and presently three Boers — the girl's brothers and her betrothed — each guiding a led horse, canter up to the wagons. Following at their heels is a Hottentot after-rider, also with a spare horse heavy laden. The men are hot, dusty, and sweat-stained. Ever since yesterday morning they have been away in the grass *veldt*, following a trek of springboks, and their display of venison and jaded nags prove that they have hunted hard, successfully, and far. Seventy miles have they ridden; a dozen springbok have they brought in; and, greatest luck of all, the flesh, skins, and horns of a great cow gemsbok decorate the led horse of Cornelis Klopper. The gemsbok (*Oryx capensis*), one of the noblest of antelopes, is rare indeed in Cape Colony nowadays, even upon the verge of the Orange River, and Anna's betrothed is proportionately elate. The gemsbok is protected, too, under heavy penalties in the Cape Colony; but what boots this to the wandering Trek-Boer in these wild solitudes, where the echo of laws can scarce be heard, and game-keepers are not?

At five o'clock the party are gathered beneath the wagon-sail, feasting

merrily, and with some noise and laughter, on tit-bits of venison; the rest of the meat meanwhile being salted, to be dried for *biltong* on the morrow. As they sit at meat, the hunting scenes are re-enacted for the benefit of Anna and her father, and, in particular, Cornelis's desperate chase of the gemsbok. Meanwhile, as the sun nears the horizon after his day's tramp, the flocks, bringing with them a cloud of red dust, come in for the night. First, they drink deeply and long at the *vlei*, which now reflects upon its glassy surface the ruddy glories of the sunset. Then the tired creatures are kraaled, their masters rising to count them as they file in.

Darkness falls swiftly; the vast dome of sky assumes its deep indigo hue of night; the stars spring forth in glittering array; there is a wonderful and refreshing coolness in the air; the cry of one or two night birds may be heard — the dikkop and kiewitje plovers — and the distant wail of a prowling jackal.

The Boer and his sons now move their squat wagon-chairs nearer to the warm blaze of the camp-fire; they smoke vigorously, and occasionally cast stolidly a sentence at one another. Anna and her heavy lover stroll a little beyond the firelight by the edge of the *vlei;* their voices intermingle curiously with the clang of water-fowl — duck, geese, widgeon, and teal — from the other end of the pool. Theirs is the old, old story, told perhaps in a rougher and less romantic fashion than in Europe; yet is its refrain as earnest and its aftermath at least as kindly as in northern lands. The South African Boer makes a true and constant husband, and a good father — some people say he is a trifle too uxorious.

At eight o'clock the day is done. The party separates for the night, after a longish melancholic prayer and a chapter of the great Bible from Stuurmann. Anna goes to her kartel-bed at the end of the big wagon, lets down the *achterklap*, takes off her shoes and sun-bonnet, loosens a button or two at the throat of her gown, pulls her blanket and sheepskin kaross well over her sturdy frame, and is almost instantly asleep. Her father snores loudly from the forepart of the wagon; the whole camp (including the native "boys" huddled beneath the wagons) is hushed; while all around broods the wonderful silence of night on the plains of Bushmanland.

H. A. Bryden.

From The Contemporary Review.

THE LETTERS OF COLERIDGE.[1]

BY ANDREW LANG.

"To the same enthusiastic sensibilities which made a fool of Nelson with regard to his Emma, his country owed the victories of the Nile, Copenhagen, and Trafalgar."

Thus Coleridge wrote in 1814, and in reading his newly published letters one is often reminded of his remark on the great sailor. "Enthusiastic sensibilities" — these, too, were Coleridge's own familiar moods. If one wearies of enthusiasm, if those tears of sensibility which he is forever shedding seem rather maudlin, yet we owe to his excitements the poems of "The Ancient Mariner," "Christabel," and "Kubla Khan." To be sure Tom Jones weeps quite as much, and we think Tom no puler.

Like Nelson's letters to Lady Hamilton, Coleridge's letters, to everybody almost, are not always agreeable reading. One lesson of Mr. Carlyle's, a lesson which he preached by precept rather than example, we have partly learned. "Consume your own smoke," said the sage. Coleridge, in his private correspondence, blew abroad the vapor of smoke which rose from, and often dimmed, the fire of his unexampled genius. On that sacred flame it is no metaphor to say that he poured too many drugs, heaped "poppy buds and labdanum." Hence ascended the smoke which he did not restrain or consume, but allowed to take its free way through heaven and earth. It

[1] Edited by Ernest Hartley Coleridge. Heinemann: London, 1895.

may be said that there is an affectation, now, of reticence, and an affectation of manliness. Affectations if they be, these at least are imitations of virtues which Coleridge did not possess. He had a kind of mania for confessing himself, and crying *mea culpa*. Like the bad man in Aristotle, he is "full of repentance," or of remorse. He is an erring creature, and knows it, and his confessions occasionally suggest, in a sense, the Scotch proverbial policy of "taking the first word of flyting." One would rather see him more hardened, less "sensible." To moralize about Coleridge is temptingly easy and absolutely useless.

To myself, the new volumes of his letters, painful in many ways, are most painful because to moralize over them is so futile. As we read, we are tempted to doubt the freedom of the will. So fluent and so flabby, at what point had Coleridge a chance to pull up to be stronger and more silent? He seems to be the victim of a destiny inherent in his constitution, and imposed on him from his infancy. Yet he did make efforts, finally he made the most difficult effort, perhaps, of all, to be strong in the strength of others. He had joys as well as sorrows, in which we common men are not partakers. He had depth, tenderness, and constancy of affection; he could love, and, beyond the usual course of nature, could make himself beloved. He had a large and generous faculty of admiration in presence of what was admirable. Again, as Scott says in his admirable letter to Maturin, "Coleridge has some room to be spited at the world." Coleridge had assailed a work of Maturin's, who was as angry and voluble as Coleridge himself was when Hazlitt (as he believed) had attacked "Christabel" in the *Edinburgh Review*. Not having Sir Walter to advise him, Coleridge retorted by an assault on Jeffrey. "A man," says Sir Walter, "will certainly be vexed on such occasions, and I have wished to have the knaves *where the muircock was the baihe;*" but reply to "the knaves," never! From these natural reflections, Sir Walter passes to a verdict on Coleridge, "a man of genius, struggling with bad habits and difficult circumstances." In half-a-dozen words, here is all that we can say of Coleridge's unhappiness. The "struggles," often foiled, the repentance, often too fluent and facile, are as real as the genius. "No man," says Scott elsewhere, "has all the resources of poetry in such profusion, but he cannot manage them so as to bring out anything of his own on a large scale at all worthy of his genius. He is like a lump of coal rich with gas, which lies expending itself in puffs and gleams, unless some shrewd body will clap it in a cast-iron box, and compel the compressed element to do itself justice. His fancy and diction would have long ago placed him above all his contemporaries, had they been under the direction of a sound judgment and a steady will." Once more, Scott styles Coleridge "our own imaginative poet," and what can we add? To Coleridge more was *given* by his genius than to any of the rest.

> He on honey-dew hath fed,
> And drunk the milk of Paradise.

Both in voice and in vision he is unrivalled. But he had not moral balance, he had not moral control, or at least he too often lacked them, as his letters inform us or remind us. We study them, rather vainly trying to discover how much of his strength came from, or was indissolubly associated with, his weakness, how far his gift was the inevitable complement of his nocturnal agonies, of the too vivid and too terrible emergence of pictures and of ideas from the submerged self which (in genius) rather controls men than is by men controlled.

I have consulted and quoted Scott for the purpose of bridling the impatience wherewith too much of Coleridge's correspondence affects myself, and probably affects many readers. The letters are not all new and unpublished; indeed those already familiar we require to elucidate those which we peruse for the first time. Mr. Ernest

Coleridge (the grandson of the poet) has been well advised in presenting some old with much new material. In his list of contents, the *provenance*, as archæologists say, of the various pieces is carefully indicated. The notes are excellent, careful, and not too long. Perhaps a place might have been found for a thread of biography by omitting a number of rather uninteresting passages. Readers who come for the first time to a study of Coleridge's life will certainly be of this opinion. To myself it would have seemed that Coleridge's long letter on the occasion of his quarrel with Wordsworth might have been omitted. *Vous abusez d'explications*, says a character of Gyp's. Coleridge was far too fond of many and long "explanations." Had he quarrelled with me, I could have forgiven him anything rather than read one of those long argumentative epistles! In the quarrel referred to, the unpleasant facts were already public property, so that it may be no more than fair to let Coleridge state his own case.

"In the name of God," Coleridge exclaims, "what have we to do with Lord Nelson's mistresses or domestic quarrels?"

What indeed! And I would very fain have nothing to do with Coleridge's quarrels, domestic or not domestic. All this is "chatter about Harriet." However, the world has chattered, and will chatter; Mr. Ernest Coleridge has enabled them to chatter with knowledge of the case. Submitting myself, as but a casual reader of Coleridge, to the judgment of the Church Coleridgian, I venture to think that, with the exceptions already noted, Mr. Ernest Coleridge has done his task as well as it could be done. It may, however, be suggested that more copious selections from Coleridge's letters to Allsop (written from Mr. Gillman's) might have been made. These letters show how much of the Old Man was left in Coleridge, even during his respectable retirement. One valuable quality, I may add, Mr. Ernest Coleridge possesses. He has more humor than is conspicuous in his great ancestor, and consequently can write with an un-Boswellian fairness. Let him not procrastinate, but give us at length a complete biography of Samuel Taylor Coleridge.

My object is not the hopeless endeavor to estimate, in a few pages, a genius who was so much mankind's epitome. To myself, Coleridge's philosophy, and politics seem interruptions of his unique poetic vein; nay, even his reflective and self-analytic poems look like flaws in the rich ore of his rarest imaginations — silver among the gold. If we could only, by examining his case, find any light on the origin of the most precious intellectual metal! But the problem evades us.

Coleridge's autobiographical account of his childhood was already known; it occurs in letters to Thomas Poole. As he remarks, but without any snobbish pride, he was not of gentle birth. His learned and simple father died when he was still a child, but already "a character — lonely, studious, fanciful, haunted by spectres whenever he was in the dark." "Armies of ugly things burst on him in the dark," and he saw the four angels of the nursery rhyme keeping them off. Already (like so many children who do not become geniuses) Coleridge was a visionary. He saw and feared viewless shapes; these visions and these terrors haunted him through life, and this undesired power was, no doubt, an element in the imagination which later beheld the slimy sea, and the death in life of the "Ancient Mariner." So much of genius, with its pains in undue measure, was born with him, and was indefeasible. The opium of which we hear so often may have stimulated and protracted, but did not cause, and possibly mitigated these experiences. They are not unusual in childhood. Mr. Louis Stevenson's account of his own "Pains of Sleep" in early youth, corresponds very closely with what Coleridge reveals; and in each case these spectres were like the figure of the man sweeping, which, in the ink-mirror of the Egyptian wizard, opens

the way to higher and more significant visions.

Sensitive, imaginative, vain, slothful, and proud (as he describes himself), the boy Coleridge was the father of the man. Born in 1772, he went to Christ's Hospital at the age of ten. His very scanty diet was an ill preparation for the struggle of life. Lamb has described in words familiar to everybody the inspired schoolboy Neoplatonist. If he got any metal worth keeping out of Iamblichus (whom few read) he had indeed the gift of mental alchemy. Probably he never was a Greek scholar in the technical sense, but Mr. Ernest Coleridge thinks that his misrendering of ἔστησε (S. T. C) was a mystification.

Leaving Christ's Hospital in 1791 for Cambridge, he was already in love with Miss Mary Evans, one of three sisters who are said to have been "with a milliner." His letters to the Evanses are now printed for the first time, except for certain newspaper publications by the editor himself. In writing to the mother, he speaks of Mary's "beautiful little leg," which already argues a considerable amount of intimacy. He soon (1792) avows his taste for gardening, which broadened into a desire to be a *durus arator*, and to live in a Virgilian manner by his industry in raising the simple fruits of the earth. This aspiration took form in the famous Pantisocratist dream, and Coleridge actually did play the husbandman at Stowey. In all this there was a good deal of Rousseau. Coleridge was not meant for a farmer, as Lamb remarked.

Coleridge's early letters to Mary Evans may be described as cousinly; they certainly are not love-letters. The last, printed here, is of February 7, 1793. On December 2, of the same year, he enlisted in the Fifteenth Light Dragoons. Was there any connection between his love affair and his addiction to the profession of arms? 'Tis woman, as Thackeray remarks in a poem, who drives man to follow the drum. Nothing is certainly known. Coleridge cannot have been in a very bad scrape. Returning to Jesus College, after four months, he was merely common-roomed, gated for the rest of term, and, as an imposition, was set to translate an appropriate author, Demetrius Phalereus. The first draft of his poem, "Lewti," was written at this time, for Mary, or about her. "Tomorrow Lewti may be kind," that is, Mary Evans may be kind. In one early draft, a Sara takes the place of Lewti and of Mary. Sara was, probably, Miss Fricker, *the other person*, whom Coleridge married.[1] This affair is rather mysterious. On July 15, 1794, Coleridge writes from Wrexham to Southey, whose acquaintance he had just made at Oxford. Coleridge talks of an unexpected meeting with Mary Evans, *quam afflictim et perdite amabam*, and "I knew she loved me." He nearly fainted, and evaded the young lady. "But love is a local anguish," and, when a few miles distant, Coleridge felt much better. Nevertheless, as he remarks in a confusion of figures, "her image is the sanctuary of my heart, and never can it be torn away but with the strings that grapple it to life." Now, in 1836, Southey said that Coleridge, in 1794, had come to Oxford (making for Wales), had devised Pantisocracy; had returned from Wales (where he was so moved by Miss Evans) to Bristol, and had then, to Southey's surprise, engaged himself to Miss Sara Fricker. Yet, in December (?) 1794, we find Coleridge writing an impassioned letter to Mary Evans! — "Is she betrothed to Mr. ——?" On December 24, he exonerates her from all blame.

The whole business is curious. In July, 1794, Coleridge nearly faints on meeting Miss Evans, whom he loved, and who loved him. On September 18, 1794, he exclaims to Southey, "America, Miss Fricker! . . . I certainly love her." In October, Miss Evans tells him that "there is a God," and that his American scheme is absurd. He, meanwhile, is flirting with Miss Brunton. In December he is

[1] Another Sara there was!

pouring out his heart to Miss Evans again. It is clear, from a letter of September 19, 1794, that Southey had been remonstrating with Coleridge about his behavior to Miss Sara Fricker. In December, 1794 (after writing to Miss Evans), he confides his misery to Southey: "To marry a woman whom I do not love . . . to be perhaps not displeased with her absence. Enough! Mark you, Southey, *I will do my duty.*"

On October 4, 1795, Coleridge married Miss Sara Fricker. Through a great part of his life he "was not displeased at her absence," and, indeed, kept out of her way.

In Mr. Traill's brief biography of Coleridge, he cites De Quincey's account of this arrangement. According to De Quincey, Coleridge assured him that "the marriage was in a manner forced upon his sense of honor by the scrupulous Southey, who insisted that he had gone too far in his attentions to Miss Fricker for any honorable retreat." On the other hand, a looker-on protested that he had never seen a man more desperately in love than Coleridge was with Miss Fricker. He certainly enjoyed his honeymoon; witness his "Lines on Leaving a Place of Retirement:" —

> Such, sweet girl,
> The unobtrusive song of Happiness.

The truth probably is that Miss Fricker caught his heart on the rebound, in September, 1794; that he "fell to his old love again," like Lancelot, in December; that, though *she* was out of reach, his affections returned to their ancient sanctuary; that Southey appealed to his honor; that he made the best of not a good business, and that the end was something not unlike lifelong unhappiness.

It is not a new story, nor an uncommon; we have read of Clive and Rosey, and Ethel — not that Mrs. Coleridge was a pretty nincompoop, like poor Miss Mackenzie. Coleridge might tell Poole (October 7, 1795) that he was "united to the woman whom I love best of all created beings." But it was not so, and it would not be so.

Conceivably Coleridge's irritation against Southey in this affair may have increased his wrath about Pantisocracy. The young men had devised that scheme of Every Man His Own Socialist, in the summer of 1794. It was a generous plan, "a devout imagination," as Lethington said of a dream of John Knox's. Man's crimes and sorrows come of temptation; remove temptation, and they will vanish. Property is a temptation, therefore let us go to the banks of the Susquehanna, live on the fruits of two hours' daily husbandry, do without property, rear an angel brood, be happy and be virtuous. As early as October, 1794, Coleridge began to find in Southey a traitor to Pantisocracy. One Shad — "Shad is my brother" — a menial, was to accompany the party. Southey took rather a feudal view of Shad. He was to be "an unequal equal," a "Hélot Egalité." Coleridge could not stand this — nay, not even if the young Fitz Shads were all to grow up real equals. By November 13, 1795, Coleridge was chiding Southey as an "apostate." "You are lost to *me* because you are lost to Virtue." Coleridge recapitulated the history of their friendship, and, in the Bower of Bliss and the arms of Sara, returned to "the convulsive feelings I underwent, and the sacrifices I made. . . . You remember what a fetter I burst, and that it snapped as if it had been a sinew of my heart." *Hæret lethalis arundo!* But now, "I love, I am beloved, and I am happy" — with the wrong woman!

Behold, then, Coleridge, the rewarded martyr of duty and of honor! Meanwhile the recreant Southey insists on keeping his own private property. Where is duty? where is self-denial? where, *enfin*, is Pantisocracy? *Autant en emporte le vent.* Where are the sentiments expressed by Southey in his "Joan of Arc"? For Southey and Coleridge too, had turned the most ardent of Legitimists, the most faithful Daughter of God, into "a Tom Paine in petticoats." To be sure, Coleridge later decided that the Maid was "a fanatic virago."

In short, there was a great quarrel with Southey; and, ah, how fresh and absurd and inspired these young men were! *Ah, le beau temps, quand nous n'avions pas le sens commun!*

Till we reach the series written in the year 1797, or perhaps 1798, I cannot say that Coleridge's poems appear, to myself, of much promise. "Lewti" has a charming melody, but Bowles and Gray inspire most of the others, when they are neither inspired by metaphysics nor by politics, nor by pity for the fortunes of the poor. The lines on that theme, in "Religious Musings," are, indeed, nobly vehement, but Coleridge's blank verse was still without charm and distinction. It is not till 1797 (according to his recollection), or till 1798, if Mr. Ernest Coleridge is right, that we arrive at "Kubla Khan." On Mr. Ernest Coleridge's system, "Kubla Khan" did not precede, but followed, in 1798, the "Ancient Mariner," which was begun on November, 1797. The dream poem was written after a quarrel with Lloyd, who had "domesticated" with Coleridge, and that quarrel was of 1798. Thus the "Ancient Mariner" must precede "Kubla Khan," in date, and, as Mr. Ernest Coleridge thinks, in natural order of development. "It would have been altogether miraculous if — *before* 'Christabel' and the 'Ancient Mariner' — it had been 'given to him' to divine the enchanting images of 'Kubla Khan,' or attune his mysterious vision to consummate harmony."

But all these poems are "miraculous;" all seem to have been "given" by the dreaming "subconscious self" of Coleridge. The earliest pieces hold no promise of these marvels. They come from what is oldest in Coleridge's nature, his uninvited and irrepressible intuitions, magical and rare, vivid beyond common sight of common things, sweet beyond sound of things heard. The years in which such gifts were given to Coleridge are few. The beautiful "Dejection, an Ode" (whence the inspiration of the "Ode to Immortality" manifestly came), is of 1802, and has been called a swan song of a dying muse. Yet of the man who could write "Youth and Age" (vaguely dated 1822–32), we may deem that his muse was not dead but sleeping. Occasionally, he himself was of this opinion; the "heaven-sent moment," only, was needed "for this skill."

The genesis of the "Ancient Mariner" is well known; every one has heard how Wordsworth and Coleridge premeditated a poetic "pot-boiler;" how "The Brownies" gave the initial idea, in a dream of a friend of Coleridge's; how Wordsworth hit on the albatross, and the crew of the dead, and how Coleridge wrote the poem. It is unique among his works, and among the works of men. We learn nothing new about the poem from the letters, the "Table Talk" lends a note on the origin of "grinning for joy." Coleridge promised, but never wrote, an essay on the function of imagination in such works as his famous ballad. About "Christabel," he said what he had to say, nineteen years after 1797, when he began the piece.

"In the very first conception of the tale, I had the whole present to my mind, with the wholeness, no less than the liveliness, of a vision." When did the "vision" appear to him, and where? Coleridge talks, in one of the new letters (October 9, 1800) about "Christabel" "running up to thirteen hundred lines," or again, "fourteen hundred lines;" but where are the missing seven hundred? His expressions, in 1816, suggest that "Christabel," like "Kubla Khan," flashed on him in a dream, beautiful, sudden, complete, "as Ilium, like a mist, rose into towers." The aid of "an anodyne" to "Kubla Khan" is confessed. Conceivably similar help was lent to "Christabel." But psychology, or pathology, will never have any information on this point. Coleridge, it is probable, even at school, had been dosed, or had dosed himself, medicinally, with anodynes. Not till 1801, it seems, did the habit become his master. We cannot tell certainly whether what was "given to him" in 1797 was partly given by the *φάρμακον ἐσθλόν* of Helen.

On a less mysterious question, Coleridge writes, "I did not overhugely admire the 'Lay of the Last Minstrel,' but saw no likeness whatever to 'Christabel,' much less any improper resemblance." Three years later (1810) a letter signed S. T. C. in the *Courier*, accused Scott of plagiarism. This letter Coleridge disavowed, through Southey. Lockhart admits Scott's adoption of "something like the cadence" of "Christabel." Scott frankly calls himself Coleridge's "pupil," and Coleridge's own view of the affair wavered with his mood.

As to "Kubla Khan," I see no reason to doubt that Coleridge dreamed the poem, and only wrote down, when awake, what he remembered out of his dream. "The images rose up before him as *things*, with a parallel production of the corresponding expressions." It is not unusual to dream verses, to remember them is rare, to find them worth remembering is rarer yet, but this might occur — to Coleridge. I am acquainted with a case in which a very great poet, producing a piece inconsistent with his natural character, afterwards declared that he had written unconsciously, and did not know what he had written! The story reaches me from the person to whom the poet told it. Again, a well-known writer has a composition among his works, of which his first conscious knowledge was obtained when he saw the piece, with his name above it, in print. This corresponds with what Thackeray and Scott tell about "The Bride of Lammermoor," and part of "Pendennis." These anecdotes are at least as strange as the dreaming of "Kubla Khan" in a non-natural sleep. But by Coleridge only could it have been dreamed.

The intercourse with the Wordsworths displays Coleridge in the happiest light. The Wedgwoods had made him free from some cares by an annuity of £150, half of which was later withdrawn by Josiah, in a manner little to his honor. Coleridge had now in Wordsworth a friend on whom he could bestow all his faculty of reverent admiration. How alluring and attractive he himself was, Miss Wordsworth tells us. Coleridge could always win a kind of adoring affection, by personal qualities which his letters hardly reveal.

In the spring of 1798 he quarrelled with Lamb; tattlers caused the breach, a sonnet also intervened. On July 29, 1801, Coleridge speaks his mind very freely about his wife to Southey. "Never, I suppose, did the stern match-maker bring together two minds so utterly contrariant in their primary and organical constitution." The poor lady promises "to fight against her inveterate habits of puny thwarting and unintermitting dyspathy." At the moment they were happier, but the end was plain from the beginning. We meet the first melancholy notes of "good resolutions," of swollen knees, of opium; and the tour in the Highlands sees the first composition of "The Pains of Sleep." He had dreams from which it was bliss to waken with a yell, though his yells did not add to the happiness of his hosts and neighbors. His stomach, like Mr. Carlyle's, was the home of mysterious woes. It is just as likely that opium was taken to lull these troubles, as that opium caused them. He sought relief in travel; he did not answer letters, or his answers did not arrive. He ominously turned over a new leaf on January 1, 1809. But the death of Dr. Beddoes a few days before would rob Coleridge of a newly found support, and "take out of his life the hope of self-conquest." He lived a wanderer, flitting from place to place. His intention of dwelling with Mr. Basil Montagu was the occasion of a painful quarrel with Wordsworth. A long letter of May 4, 1811, to the poet, contains Coleridge's statement of his case. The trouble began in October, 1810. Wordsworth, not judiciously, had thought it right to give Mr. Montagu his opinion about Coleridge as a guest, and Montagu, most mischievously, repeated the remarks (probably inaccurately) to Coleridge, who may have heard them incorrectly. Wordsworth

acknowledged that he might have said Coleridge's habits were a nuisance to the family. No doubt they were, and, of all people, Coleridge must choose poor Mary Lamb for his confidences; and then indulge "in long weeping."

Poets, as Mr. Arthur Pendennis truly remarks, do feel more acutely than other people, and when they feel they do not groan soft, they groan loud; like another hero of fiction. And then Mr. Sharon Turner, dining at Mr. Longman's, "trumpets abroad" the story of the dispute. Finally to-day the wretched story is published afresh, and we are to moralize the tale. Wordsworth made a mistake. Montagu was an ass. Coleridge, really wronged, was too free in his lamentations. But the general result was to keep him at a distance from the salubrious influence of Wordsworth, as he was already remote from his wife, and from the charming children to whom he was warmly attached.

A genius unexampled, both in volume, diversity, and distinction, a fond heart, a fascinating manner, all were given to Coleridge, and all actually, by some malignant spell, wrought against his happiness. He had more genius than half-a-dozen men could have used, and with it a mysterious martyrdom of pain. His first true love was thwarted, and his ardent friendship made him feel a breach as a less affectionate man could not have felt it. There came a new rupture with Wordsworth, or the old was revived. The success of his play, "Remorse," was a transitory gleam on a dark chaos of lectures, brilliant but unpunctual. Even Poole was "unkind," and the Wedgwood annuity was diminished by one-half. We see Coleridge, as he says in a letter long since published, "beating pain by a constant recurrence to the vice that reproduces it." His self-accusations (p. 624) become maudlin and incredible. He had Tantalus dreams of books to be written which were never written. Nay, as Scott, in his last days, had fancies that his debts were already paid, Coleridge believed (or said) that these books *were* written. He retained sense enough to discourage Wordsworth from translating Virgil into verse. "To read page after page without a single *brilliant* note depresses me."

Finally, in 1816, Coleridge really did achieve self-conquest in a manner, for he put himself into the charge of Mr. Gillman. This indicates unusual resolution for such unhappy tendencies are generally accompanied by an angry pride (as in Prince Charlie's case), and a conviction that the patient is in the right, and every one else in the wrong. His passions of repentance, though trying, were not wholly false, his religious emotions were genuine, and with the Gillmans he found "a welcome which lasted to the day of his death." As Mr. Ernest Coleridge finely says, "their patience must have been inexhaustible, their loyalty unimpeachable, their love indestructible." A note to p. 658 shows in the editor an honorable candor.

As to Coleridge's later oracular days, his metaphysics, his "abysmal A-seity," it would ill become one to speak who is invincibly ignorant of the subject. Probably he was a great philosopher, as he was a great poet, a great if discursive critic, and (so Mr. Traill bears witness) almost a heaven-born political journalist. Only those who saw and heard him can have any conception of his "involuntary speech from involuntary brain action," as Miss Martineau calls his talk. Of that talk we have Carlyle's famous description. It began anywhere and ended nowhere, Carlyle thought. Keats has left a brief synopsis of two miles of monologue on dreams, with a ghost story. Carlyle's verdict is, of course, *narquois*, but it is certain that Southey, too, was disgusted by Coleridge's "loquacity." Southey had seen too much and heard too much of his brother-in-law. But the living incarnate Coleridge seems to have been a phenomenon as extraordinary as the best of his actual works. Like Burns's, Byron's, and Poe's, his life is a lesson in the pains and sorrows of genius, but, lest we should think these essentially and inevitably allied

with the highest powers, we have the examples of Shakespeare, Molière, Wordsworth, and Scott. Thus the interconnection of dread dreams with poetic vision, of absent self-control with poetic inspiration, remains as it was and will be — a riddle. The genius can exist without the aberrations, and the aberrations, unluckily, without the genius.

The letters and notes contain a good deal of information about Coleridge's pecuniary affairs. These could not be prosperous. Had he steadily lectured, steadily contributed to the press, steadily finished his poems, and sent them direct to the printers, had he fulfilled any almost of his literary schemes, he might have supported himself and his family in comfort. None of these things he did; he never took example by Southey, and he was aided again and again by friends or kinsmen. If he accepted money, at least he did not despise or detest the donors. He certainly had the contempt of wealth, which could give him nothing. For him life and the Muse were sufficient. I have not thought it necessary to go into these financial details minutely. But Mr. Ernest Coleridge displays an acquaintance with his ancestor's life so complete and accurate, that one can only end by adjuring him to write a full and authoritative biography, full, but not too long! His freedom from undue partiality, his candor, and family affection, fit him for the task, in which probably his philosophic studies enable him to dispense with the aid of a specialist in metaphysics.[1]

From Temple Bar.

THE GRAVE OF THE DRUIDS.

A WILD sea driven by a keen northwest wind is beating against the granite rocks at the Pointe du Raz in Finistère, which stretches out into the Atlantic like a serrated spear-head, and is continued many miles farther west by a broken line of low rocks or reefs, of which not a few are quite under water. Lying near the edge of a cliff above the beautiful but terrible little Dead Men's Bay (Baie des Trépassés) I listen to the waves chanting the *De profundis* in those caverns below where so many corpses have been left by the tide. Half converted by the influence of the spot to the superstition of the Breton fisherman, I fancy that I too can hear the words "*Domine, Domine,*" in the thunder of the waves as they roll into the darkness of the rock where the human waifs find rest until the next tide tosses and bruises them again. Everything is sad or ghostly here. The pale pink flowers of thrift that the sweeping breeze vainly tries to tear and scatter, and the melancholy samphire that clings in the crevices of the granite, seem to grow and bloom for the friendless dead.

From this bay, according to Celtic tradition, the dead Druids were embarked for burial in the Ile de Sein — the largest of the reefs stretching away yonder towards the west from the black headland bristling with granitic spines. Here too, according to a tradition that may be Druidic or Christian, the ghosts of the drowned of all nations wander and weep until they are at rest. When the fisherman or peasant whose cottage is on this desolate coast hears through the shrieking and howling of the wind a knocking at his door in the night, he does not open it, but holds his breath and prays for the dead, because he fears that his visitor has left his body in the sea, and is now knocking with his unburied bones to obtain the dole of a prayer.

From the Baie des Trépassés my thoughts wander on the track of the dead Druids, and I have a strong wish to cross the Raz to their grave, the Rock of Mystery, where the nine virgins interpreted the oracle, and where

[1] Readers interested in Miss Mary Evans will find, in the *Athenæum* of May 18, an interesting letter from Coleridge to that lady. They first met, after their parting, about 1808. "Truly happy does it make me to have seen you once more, and seen you well, prosperous, and cheerful, all that your goodness give you a title to." Miss Evans was now Mrs. Todd.

sublime desolation inspired Chateaubriand to write one of his most vigorous pages of imaginative prose — the episode of Velléda in "Les Martyrs."

The opportunity soon came. The inhabitants of the Ile de Sein (Enès Sûn, in Breton) have their annual Pardon early in May, and the priest who was to figure most prominently in the blessing of the sea and other ceremonies being an old friend whom I had met several years before in Brittany, I was offered a place in the boat that came over from the island to fetch him.

Although the passage from the Pointe du Raz to the Ile de Sein may, under favorable circumstances, be made without any risk, the islanders themselves, however familiar they may become with the currents and reefs, never lose their respect for the Raz — as the rock-strewn strait is named. How could they, when there is scarcely one of them who cannot speak of a father, a brother, or a cousin who was lost in it? Moreover, all of them know that there is a very strong probability that they will meet their own death in these waters. Consequently the old Breton couplet which is on their lips from childhood expresses very nearly the truth: —

Biscoas den me tremenes ar raz
Nun deveze aoun pe glas.

The literal translation is: —

No one ever crossed the Raz without fear or hurt.

In another and a better known couplet, likewise inspired by the dangers of the Raz, is to be found the religious feeling which is so strong in all the fishing population of Brittany, and is especially so in these islanders, who, being even now in no small measure under the influence of hereditary Druidism, have the liveliest faith in the supernatural. The words have all the beauty of simplicity: —

God help me in crossing the Raz. The boat is little, and the sea is great.

There may be those in our own islands able to give the right sound to the Celto-Breton lines: —

Douë va sicourit evit tremen ar Raz
Ar vag a zo bihan, hag ar mor a zo braz.

Here I may say that I met an elderly mariner on the Ile de Sein (where the purest Breton is supposed to be spoken) who told me that in the course of his voyaging he had met Welshmen and Scotchmen whom he could understand in their own language and who could understand him. His first experience of the kind was at some port in Wales, where to his great surprise he heard people speaking what he took to be Breton. "We were all English once," is a frequent saying of these Armoricans.

Our crossing the Raz was quite free from peril, for there was scarcely wind enough to fill the sails of the well-built fishing-boat which took us on board at Dead Men's Bay. As we passed a bevy of dark and sinister-looking cormorants perched upon a low rock, the curé disturbed my ideas — I was thinking that Milton was right in using the cormorant as an image of Satan, although sitting on trees is not its habit — by saying that this bird is peculiarly favored by God, inasmuch as it can fly, swim, dive, and walk. It really seems to possess more faculties than it deserves; but we know that the wicked have prospered from very ancient times, and the curé may have reasoned too hastily from appearances.

We are now in the current. There are great waves here, although there is no more wind than there was before. When the boat drops down in the trough of the sea the land is lost. The current is rushing towards the north. The breeze is against it, and I am told that if it were as strong again the waves would be twice as high. We pass the spot where one of the islanders who are with us saw his father go down and another his brother. Can I wonder that their rough faces are solemn although there is no danger now? There is the great current which flows to the north-west and to the south-east according to the tide, and there are lesser currents which flow back and form whirlpools round the rocks. Woe to the mariners who

are driven by stress of weather into these waters!

On the highest point of the cliffs that we are leaving is one of those little chapels of which so many have been raised on the stern coast of Finistère. Dedicated to *Notre Dame de Bon Voyage*, it is held in great veneration by the fishermen of Auiernd and Douarnenez who pass the Raz in search of sardines. When they come within sight of it, they will often chant the *De profundis* for their dead relatives and companions, or sing the *Ave maris stella* for themselves. Although when on land they are rarely quite sober, unless their pockets have been some time empty, they are always religiously disposed when at sea. The immensity of the sky above and the depth of the sea below inspire reverence. The Breton fishermen are not then troubled by the desire to drink anything stronger than water. It is only when they set foot on land that the weakness which is common to all of them returns.

Rows of white-faced houses show above the water to the west. They seem to rise from the waves. As a matter of fact, the land on which they are built is only a few feet above the sea. Not a tree stands against the horizon; not even a bush of tamarisk fringes the shore. On the northern side, however, of the low strip of land are some dark granite rocks worn by the beating waves into fantastic shapes. That was the sacred part of the island. It was there where the inspired virgins had their temple.

Long before our boat could tack into the little port the single bell in the low church tower saluted the curé's arrival with a rapid ding, ding, ding, which borne upon the wind from such a desert reef had an effect as charming as it was strange. The bell, as I afterwards learnt, was not rung by means of a rope, but was struck on the outside with a hammer by a boy who had been sent up into the open belfry to do this work. It is thus that the tocsin is often "rung." The fishermen had all come in before their usual time, and the fleet of smacks with flags flying was at anchor in the harbor. The whole population of the island had mustered on the quay. Could these people, now so mild mannered, so hospitable, be the descendants of those terrible islanders who in the old wrecking days were said to be the worst wolves of the sea along the treacherous Breton coast?

One of the first impressions of the visitor on reaching the Ile de Sein is the apparent insecurity of the inhabitants. It seems as if one great wave in no very extraordinary weather might sweep over the low rock and drown everybody. The people have been badly frightened at different times when great storms have coincided with high tides. In 1865 they all gathered round the church in the belief that their last hour had come, for the sea was breaking over a considerable part of the island, and most of the houses being flooded, there was a dire panic. When the critical time was passed not an islander was tempted to emigrate to the mainland. All were resolved to abide, whatever might befall them, on their wave-girt strip of land, where their fathers and mothers had lived and died. Since then the quays built by the government have greatly reduced the risk of an inundation, and have arrested the erosion of the ever-wearing water.

Although the island is little more than a mile long and scarcely a quarter of a mile broad in its widest part, it supports a fixed population of about eight hundred. Strictly speaking it is the sea that supports them, for if they depended upon the resources of their rock they would very soon starve. The men catch various fish for their own use, but for the purchase of bread, clothes, and other necessaries they depend entirely upon lobsters and crayfish, which are sent in great quantities to the mainland. The Paris market is largely supplied from this source. The archipelago of rocks and reefs forming what is called the Chaussée de Sein would be the watery paradise of *crustaceæ* if man were not there with his insidious trap of wickerwork which he

craftily baits and lowers to the rugged floor of the sea. Yet although this fishery is said to represent an annual value of at least £12,000, the lobsters and their congeners appear to be sufficiently prolific to resist the constant drain upon their population. The fishery has brought such prosperity to the islanders that there is now little or no poverty among them. It is true that beggars are sometimes to be seen even here as they are everywhere in Brittany; but these are enterprising mendicants who come over from the mainland in order to give the islanders an occasional opportunity of practising Christian charity. They always remain until they have quite outworn their welcome, and if their visit has been well timed they carry away a goodly bundle of sous tied up in a rag or the toe-end of an old stocking.

From the beginning of May until the end of autumn the population is nearly doubled by immigrants from Paimpol and Conquet, fisher-people who come in their own boats, often with their wives and children and much of their household furniture. The voyage in the case of the Paimpolais is a long one and is always attended with some risk. But what difficulties and dangers will people not brave in order to earn a sure living? These wanderers, like the natives, give all their attention to lobsters and crayfish. The islanders show no ill-feeling towards the strangers, but readily afford them facilities for establishing a temporary home upon the rock.

The Iliens, as the natives of the Ile de Sein are frequently termed, are more interesting from the ethnographical point of view than most Bretons; and yet their existence has hitherto been almost overlooked by those who travel. Whether they are descendants of the Armorican Celts, who never emigrated after their arrival from the east or south in this corner of Europe, or whether they come from the stock of those Bretons who were driven back from insular to continental Britain by the Angles and Saxons, it is certain that their position for centuries has been very much that of a small distinct tribe. The reason of this is not difficult to explain. To a woman of the mainland marriage with a man of the Ile de Sein practically means imprisonment for life on one of the smallest and dreariest of inhabited rocks. Great sacrifices, as we all know, have been made for love, but those who have had to work for their living from childhood and have had the daily trials of matrimony sternly impressed upon them by the example of toiling and struggling parents, do not easily lose their heads through foolish listening to their hearts.

An *Ilien* must be in a position of very exceptional comfort and prosperity for him to be able to induce a girl of the mainland to share his lot, with the only too likely prospect of being left a young widow with children to rear. On the other hand, the *Iliennes* are rarely moved by the desire to leave their rock. When they go to the mainland — which is very seldom — they are more scared than charmed by all the strange things that they see there. They feel very timid and shy, and are glad to get back to their treeless home amidst the waves, where they know everybody. They therefore find their husbands among the youths with whom they played in childhood. The people having been thus in the habit of marrying almost exclusively among themselves for centuries, the natural consequence is that they are all more or less blood relations. They might be described quite accurately as a population of cousins. Scarcely a marriage takes place but a dispensation has to be obtained owing to an impediment of consanguinity.

It might well be supposed that a marked physical and mental degeneration of the race would have resulted from this long continued habit of intermarriage; but such is by no means the case. The islanders are superior in physique to the fishing population that one sees in the neighboring ports, and appear to be quite free from the tendency to deformity and idiotcy which forces itself upon the observer with

such saddening frequency elsewhere in Finistère.

Alcohol probably does not influence the unborn here in a like degree as there. The men are not tall, but they are well built, and there is much regularity in their features, whereas on the mainland downright ugliness is the rule.

But it is the beauty of the women of the Ile de Sein by comparison with the plainness of the Bretonnes of the neighboring continental seaboard that is truly remarkable. There is a prevailing type that approaches the Greek by the straightness and delicacy of the nose, the prominence of the chin, and the sensibility of the mouth. With these features there is often a certain porcelain-like whiteness of skin, combined with rosiness on the cheeks. Such delicacy of feature and tint, together with such refinement of expression, is so rare in women accustomed from childhood to a hard life and much exposure to weather, that one marvels to find it here upon this desolate rock. Another strong characteristic of these women is their pensive and serious air, which makes the best looking among them handsome rather than pretty, except in very early youth. They are often to be seen going about their daily work as if they were fulfilling destiny, with minds never free from the shadow of a catastrophe that is past, or is still to come. Of all women not cloistered, I think these must be the most silent. Nowhere else, with human life all around me, have I known such quietude as upon this island.

The costume is quite in keeping with the gravity of the female character here. It is, with the exception of the linen collar, entirely black when a woman considers herself dressed ; and it is largely so even when she is in her working clothes. But her distinctive mark is her coiffure, which is evidently a survival of the headdress so much worn by ladies in the twelfth century. It is a close-fitting cap of black cloth, covering all the upper and back part of the head, and falling behind below the shoulders. Long broad ends descend from the ears in front, except when they are pinned up so as to form loops on each side of the head. When the ends are turned up, this sombre headdress is picturesque and becoming, and when seen from a little distance it has much of the character of the well-known coif of the Strasbourgeoise. But the wearer does not always care to loop them up. If she is a widow — and how many widows there are, alas, among the eight hundred souls ! — or if she is no longer young, she generally prefers to wear her coif like a monk's cowl. What a solemn figure is then hers when walking slowly and alone upon the deserted shingle-strewn shore, with a bundle of dark seaweed in a long, flat basket on her head, she shows against the sad grey of a sunless evening sky and the lower grey background of the melancholy ocean, flashed with white where the dishevelled waves are raging upon the reefs !

The seaweed, which is thrown up upon the shore by the wintry gales in great quantities, is an important source of revenue to the islanders. The women collect it, pile it up into stacks, and when it has been sufficiently dried by the air and sun they burn it. All the burning takes place at the beginning of summer, and then, when the weather is calm, the island is covered by a dense cloud of white smoke. Dealers come from different parts with boats to buy the ashes, which they sell again to the manufacturers of soda and marine salts. Although the price paid to the women is only two sous for a bucketful, they find the occupation remunerative. It is the chief resource of widows, who by this means, and by making soup in summer for those fishermen from Paimpol and Conquet who have no wives, are able to keep themselves from poverty.

All the gardening is likewise done by the women, for the fisherman will never put his hand to anything when he is on shore. Work that is not directly connected with his business is beneath his dignity. As only a small part of the island is capable of cultivation, garden-ground is very precious.

Almost every family owns a small plot, which in many cases does not measure more than six yards square. The earth is usually thrown up towards the centre mound-wise in order to add a little to the superficies. The vegetables chiefly grown are potatoes and cabbages. Each plot is surrounded by a rough stone wall, which the women have been to the pains of building with shingle which they have carried up from the shore. Very curious are all these carefully fortified little gardens without a fruit-tree or even a currant-bush in any one of them. The manure used is always seaweed. There are cows on the island, but as they are expected to furnish fuel as well as milk, horticulture, such as it is, is carried on without their assistance. To collect and prepare this fuel is also part of the women's duty. The cassons make a very good fire, as I learnt by experience years ago at Plogoff, the nearest burg on the mainland. The little cows feed on patches of sandy pasturage which are to be found here and there, and also upon a species of seaweed which they select on the shore. Children of the Ile de Sein, when they have been taken to the mainland and have there seen a horse for the first time, have been known to describe it as "a cow without horns." They have also wondered greatly at the trees, and fearing that these might fall, have carefully avoided them. No doubt a tree must appear very unsafe to any one who looks at it for the first time and knows nothing of the provision made for keeping it upright.

Independently of the violent winds, which not even the pine could resist on the Ile de Sein, there is no spot where the roots of a tree striking down would not very soon reach the granite. I found no indigenous plant on the rock of stronger growth than the henbane and the horned poppy. The geranium (pelargonium), which is such a common ornament of window-sills, now thrives here in a truly wild state, but it is always stunted.

The Sein islanders rarely eat any animal food except fish. As it is brought in, the women salt it and lay it out to dry on the quay wall or on a convenient rock, so that before the winter they have made a large provision. Dried conger is especially esteemed. Their ordinary cooking is well adapted to keep in check a too eager appetite. Potatoes in their skins with a layer of dried fish dropped upon them during the boiling is an all-the-year-round dish, which is considered one of the most satisfying and economical. The common drink is water or cider. Fresh water is precious, for much of that which is used is brought over from the mainland. The women have a mode of baking bread which is probably one of the most ancient still practised by mankind. A thick layer of live embers having been spread upon the forepart of the hearth, a circular iron plate a foot or more in diameter is pressed down upon it. Upon this the dough, made into the desired shape of the loaf, is laid. Over it is placed a convex iron cover; then a fire of dry seaweed is made upon this. The seaweed burns slowly and supplies just the heat that is needed. In every house there is all that is requisite for baking in this manner, for although in summer there is a regular supply of bread from the mainland, the furious currents of the Raz and the westerly gales may keep all communications interrupted for weeks together in the bad season. It is true that there is a telegraphic cable, but the means of feeding people by electricity has yet to be discovered.

I also observed in these fishermen's houses another contrivance which is not often seen elsewhere. Every fireplace is furnished with sliding doors, which can be drawn together by a person who is on the hearth. Thus the cooking may and often does go on out of sight of those who are in the general room. It is to keep the wind out of the house that provision has been made for closing the fireplaces in this manner. When a strong gale is blowing, gusts down the chimney would send the fire into the middle of the room, if the draught were not

stopped. At such times the islanders do not attempt to warm themselves otherwise than by huddling together and shutting as much of the wind out as possible. The blast is sometimes so violent that those who venture beyond the shelter of the houses are in danger of being blown away. A woman in man's clothing is then no uncommon sight. Her motive in thus changing her garments is quite understood.

The burg of the Ile de Sein — it has no name apart from the island — has this remarkable peculiarity: although it is so small, one may live in it for a week or more without being able to find one's temporary home again when it has been lost sight of. All the houses are crowded together, apparently with the object of sheltering one another from the wind. On the western side, the outer dwellings turn blank walls towards the sea. The rows of houses are separated by very narrow passages which intersect with perplexing frequency. There is so much similarity that the place is as puzzling as any labyrinth. There are two quays, separated by the breadth of the little town. A visitor who may chance to live on one is pretty sure to spend much of his time in futile searching for his house, when he has grown ashamed of allowing himself to be led about. When he is thoroughly puzzled, it occurs to him that he is on the wrong quay; but he soon perceives that it is of no use trying to understand how he came there. In the winding passages all notion of direction is quickly lost.

If a passage does not turn towards one of the quays, the probability is that it will lead somehow to the church, which stands in the midst of the huddled up houses. It is a poor and plain little structure, which was built when the dwellings surrounding it were mere hovels. As these crouched near the ground from fear of the wind, so did the church. It is in a small cemetery, which must be very old. Perhaps the Druids were buried here; there is no soil deep enough for graves on that spot which is supposed to have been set apart for the most solemn mysteries. This churchyard is nearly paved with tombstones, like many another in Brittany, thereby differing in a striking manner from the rural cemeteries in some other parts of France, where the graves are generally marked by mounds covered with grass and wild flowers. The Bretons, like the Basques, appear to yearn for massive and lasting tombstones. Here one sees neither flower nor blade of grass over the dead. There is barely a yard of ground that is not covered by a slab of granite. How then, it may be asked, can the burying go on? It is simple enough, except when members of the same family die in quick succession, and then matters are apt to become complicated. Before each fresh interment it is usual for the bones of the person who was buried last to be collected and placed in a box. These and any other bones that may have been removed are afterwards put back into the grave — always on the top of the new coffin. There is a special ceremony at the re-burial, which is not liturgic, but a local custom.

As there are only five or six family names for nearly the whole population of eight hundred, it is not surprising that the same names should be repeated again and again upon the tombstones. There are two which are borne by the majority of the inhabitants. If a Sein islander is not a Porsmoguer, he will almost certainly tell you that he is a Guilcher. And the Porsmoguers and Guilchers are all cousins. The Porsmoguers are supposed to be the oldest family on the island. It is known that they have been there several hundred years. I have been assured that the Breton admiral, Hervé de Portzmoguer (the slight difference of spelling signifies nothing), famous for his heroic courage in the memorable naval fight with the English at the entrance of Brest harbor in 1513, belonged to this stock.

The population of the island must have been much more scanty than it is to-day, when the light of Christianity was first flashed upon it in the fifth

century. There were no convenient markets for shellfish then, and there was not sufficient traffic on these dreaded seas for wrecking to have been an industry that could be relied upon, even with the help of those fires which the wild Celts are said to have lighted in order to draw ships upon the reefs. It was centuries later that the business became really lucrative and demoralizing. St. Gwenolé is given the credit of having converted these people to Christianity, and he is the patron of the island. The church is dedicated to him. According to the records collated by the Bollandists, his father Fragan and his mother Gwen were among the Bretons who, fleeing before the Germanic hordes at the beginning of the fifth century, left England and took refuge in Little Britain. Gwenolé's convent at the mouth of the Aulne was the beginning of the celebrated Abbey of Landevennec, the most ancient monastic foundation in Brittany.

Although nominally converted to Christianity in the same century as the Irish, the Sein islanders continued many of the practices of Druidism down to quite modern times. In the seventeenth century, when Père Maunoir undertook their reconversion, the paganism of the old Celtic world was still strong upon this rock. It was after his mission that the church was built. Even now there is a current of Druidism that runs side by side or mingles with the fervent Christianity of the people. They imagine that they hear their dead speaking to them by the voices of the waves, and the fancied messages that they thus receive from disembodied spirits tinge their interpretation of the doctrine of the communion of souls sanctioned by their missionaries with a superstitious mysticism that is only tolerated by the Roman Catholic clergy, because any violent attempt to correct it might do more harm than good. This habit of living with the dead and looking for signs from them is to be especially observed among the women, who fall so under the sway of it that most of the time that many of them spend in prayer is in the cemetery, not in the church. The men attach great importance to birds as omens of weather. There is a beautiful sea bird with black-and-white plumage, and an orange-colored beak shaped much like a parrot's, which in their belief always brings fine weather. The notion is probably warranted by the bird's habits, but the name which they give it, *Douëic*, "little God," is a distant legacy of paganism.

That these people should be strongly influenced by the mysterious in nature is no matter for wonder, considering that they live on what was so long the Rock of Mystery, where the terrible virgins unchained and calmed the tempests, kept the sacred fire burning, knew the language of the waves, and interpreted the oracle to those who, undaunted by the dreadful current, by awful spectres throwing flame, and by the infernal cries and howls that came over the water, dared to consult them. The most beautiful virgins of Armorica were chosen by the Druidic colleges to be consecrated to the dread mysteries of the Ile de Sein. According to a local legend, every year one of the nine sibyls was immolated, and dolmens and menhirs far and wide were sprinkled with her blood. With minds leavened with such traditions as these, and having little to look at but the sky and sea, these islanders would be brutish if they did not allow their thoughts to feed on the mysterious.

"The Englishmen's grave" is here, even on the Druids' rock. Honor to those who laid the stones round it so well and so lastingly, and who respect the sepulchre of England's nameless dead! Two British mariners, whose bodies were washed ashore many years ago, were buried a little distance from the spot where a lichen-covered cross marks the place, where, according to tradition, stood the sacrificial dolmen on which the human victims were immolated. The masonry that encloses the grave-plot is likely to last as long as anything upon the island. The cross that was painted upon the stone has been so washed by the rain that the

form is now only dimly visible. But every islander knows "The Englishmen's grave," and often a Breton seaman, ignorant of the difference of creeds, but well aware that Christianity came to him from across the water, has stopped here to say a prayer for the English sailors. There is nothing like the fellowship of the sea to breed sympathy between man and man.

Far from all houses, on a still more desolate part of the island, is another small burying-place. It contains nine graves, eight of which are covered by plain granite slabs without a word engraved upon them. Here lie the victims of the cholera epidemic of 1887. It was by official order that they were buried here, quite away from the church and cemetery, and their near relatives still resent a decision which seemed to them an outrage. These banished dead are the more remembered and visited because they were treated in a manner so shocking to Breton sentiment, but so necessary from the point of view of modern science. It is seldom that a kneeling figure is not seen, as still as a statue, beside one of the granite blocks. I have found the widow and the orphan boy kneeling here in the dusk. Such figures, when seen by the moaning waves in the dying light, strike a chord of human feeling which nowhere is so solemnly touched as in Brittany.

It is Sunday afternoon. The Pardon commenced this morning, when the little church was too small for the people who crowded to it. I am now waiting on a wave-worn rock for the procession to pass along the quay to the lifeboat, which has been brought out and set upon a platform. All the boats are in the little port, and they are flying flags. The boy has gone up into the low church tower again, and is hammering the bell with frantic zeal. Above all the heads are the banners and the statues of saints taken from the church, which the fishermen carry. Raised aloft upon a board is the quaint little image of St. Gwenolé, wearing an abbot's mitre and holding a crozier. After the clergy, walk the inhabitants and the fisher-people from Paimpol and Conquet — the women easily distinguishable by their white coifs. The lifeboat, which has saved so many lives, including a crew of thirteen from an English vessel, the Pretoria, is manned by its crew. Wild-looking Celts some of them look with their great heads covered by a bush of black hair; but in their weather-tanned faces one reads that they are heroes without knowing it.

My friend the curé now shows himself in the lifeboat, and addresses the people in Breton. I cannot understand what he says, but I know that he is stirring sad recollections, for the women all around me begin to sob, and tears are coursing down the fishermen's rugged faces. The men wipe their eyes with their sleeves and the backs of their hands, but they cannot stop their tears. Who would have thought that such tender hearts could beat in the bodies of such rough men? Among the weeping is an old woman who had told me that her hopes were in the Raz. Now, an allusion to the fishermen who left some weeks before for Iceland, sets all the Paimpolaises crying, for there is not one of them to whom the thought of those who have been lost in the northern seas, or of those who being the last to go, may never return, does not bring a pang. There was no way of escaping from this pathetic scene. Having mingled with the crowd, I had to stay to the end.

The evening before I left the island I wandered in the twilight to the solemn spot where the lichen-grey cross has taken the place of the blood-stained dolmen. Three menhirs — rude prototypes of the Gothic spires of Brittany — still point to the mysterious sky upon this fragment of the antique world. Patches of wiry grass spotted with pale flowers of the sea reach down over ribs of granite to the fantastic rocks, against which the waves are breaking. Upon the darkening green-grey sea are long lurid streaks and strange gleams, which seem to come from its own depth, for the sun is gone.

At a little distance from the shore, where the white waves leap in fury, are the first reefs; others lie beyond, then others and others to the sky-line. As I gazed at this grand desolation, I picture the dead Druids being borne hither on the billows, and the fateful priestess throwing samole from these rocks to the wasteful water that roars below. A little noise makes me turn round, and I see a dark figure gliding past — the figure of a woman with a solemn white face and eyes that, during the moment that she turns them to the sea, have the strange, pure light of the moonlit wave. Not one of the soothsaying virgins could have looked in this semi-darkness more sibylline or oracular than she; but instead of stretching rigid hands towards the moaning reefs, and dropping samole into the ocean, she calmly untethers a cow and leads the beast beyond the menhirs. Was it such a Druidess as this that suggested Velléda to Chateaubriand?

E. Harrison Barker.

From Blackwood's Magazine.

MOUNTAINEERING MEMORIES.

My first introduction to mountaineering was surprisingly sudden. Having never before crossed a glacier or made an ascent more formidable than that of Primrose Hill, I had been infected by the enthusiasm of some ardent mountaineers bent on conquering one of the giants of the Bernese Oberland; and when in the course of the proceedings I found myself swung into space by the breaking away of a snow bridge over a crevasse, apparently unfathomable, with walls of ice going down and down to horrible depths; when my waist was reduced to wasp-like proportions by a rope which seemed perilously thin, and was, moreover, merely attached to a guide who was himself supported by nothing in particular; when that awful crevasse yawned below, and the sun looked so far off through the hole I had made in the snow, — for at least half a minute I thought mountaineering an overrated amusement, and wished I had spent my holiday in throwing stones into the sea or making the ascent of Salisbury Plain.

Our peak was the Finsteraarhorn, the magnificent spire of rock on which the last rosy gleams of the setting sun have been seen by many a tourist passing over the lake of Lucerne. Nowadays the ascent is common enough, but a quarter of a century ago it was still looked on as a formidable undertaking. The *arête* has been described as an indefinitely narrow ridge, with a perpendicular precipice of infinite depth on one side, and a steeper and deeper one on the other. It often involves a good deal of step-cutting in hard ice; and it has some steep snow slopes, where steadiness is indispensable, and a slip may not impossibly start an avalanche. Without being characterized by any special difficulties or exceptional dangers, it is not exactly the mountain which an absolute novice should select for his first essay in climbing. But this is anticipating.

It happened that I had walked up from the Rhone Valley to the Grimsel Hospice; and as I made a short cut by the shore of the usually frozen lake, I became aware of the descent of a human body, head first, from a slab of rock above to the chilly water below. Its owner is now bishop of an English diocese, but at that period he had unfortunately not attained to the dignity of an apron; and when he became aware of my presence, as he rose to the surface after his header, he displayed an anxiety to know whether I was the first of a party likely to cut off his retreat to his clothes. I was able to reassure him on this point; we made friends, and presently walked together to the hospice. In the course of the evening he confided to me that he was to be joined next day by an Alpine clubman for an expedition to the Bel Alp, over the top of the Finsteraarhorn; and finally, without having to undergo any inconvenient inquiry as to my previous experience in the ice-world, I was enlisted in an adventure

which was to be the first of a long series, rich with pleasant reminiscences in after years.

At the present time the mountaineer's work is made easy by the provision, on every mountain of note, of a hut affording more or less convenient accommodation for sleeping and cooking; but in 1864 we had to content ourselves with the shelter of a big boulder on the flank of the Rothhorn, where travellers and guides packed themselves into a hole into which the water dropped from above and the icy wind blew from everywhere, but which was, at any rate, free from the entomological terrors that beset modern refuges. There we saw the great white stars sink one by one, and then we settled ourselves to such sleep as was possible, when nobody knew which were his own legs and which were his neighbor's, and when the roars of avalanches repeatedly overpowered even the snores of our guides — a class who, in my experience, consider it a part of their duty, on the rare occasions when they sleep continuously, to notify the fact to everybody in their neighborhood. Our night, however, was not a long one, for they were up before dawn to prepare a breakfast that we found it difficult to swallow, and by 4 A.M., we were zigzagging up interminable snow-slopes. Then there came some crawling along a ledge of rock that would have been particularly convenient for anybody with suicidal tendencies, as a village in the valley some thousands of feet below seemed as if one could have dropped upon it. Then we scrambled along the *arête* which was the subject of the definition already quoted; then steps had to be cut up a *couloir* of hard ice which seemed to my inexperienced eyes to be nearly perpendicular, and which even a matter-of-fact clinometer showed to be over 55° in inclination; and finally we reached the top, jubilant over an ascent of uncheckered success. As to the view, I believe nobody thought about it. I have a dim recollection of some huge islands of rock standing out of a sea of clouds, and of a dazzling mass of ice which caught all the rays of the sun, and which must, I suppose, have been the breastplate of silver armor that guards the Jungfrau. But people who suppose that you climb a mountain to enjoy a view would be capable of asserting that you go a-hunting in order to kill your fox; whereas you may get a much better standpoint for scenery in the valley, just as you could with far greater certainty shoot Master Reynard at the gate of your chicken-house. We had achieved the result of hours, during which the mind had to be concentrated on the work of the moment, and every thew and sinew were called into play. This is the best sort of recreation, in its etymological sense of renewing exhaustive forces and reviving dormant activity. The mountaineer sees nature in all her moods — the fierce storm and the eddying mists, as well as the rosy flush of sunset and the orange glow of dawn, the unearthly blue that fills the cool caverns of ice, as well as the moonlight that turns the glacier into a silvery sea. But the panorama is generally too vast; the distance lends indistinctness, but not enchantment. No summit affords anything like so artistic a prospect as may be obtained in the valley below, and the notion that one climbs mountains for the view may be at once put aside.

With the descent, the difficulties of the tyro began to be felt. I had not long left a public school, and was unconscious of the possession of nerves. Given sufficient hold for hand and foot, I never felt any more inclination to fall in a place where a fall would carry me a couple of thousand feet to the bottom of a precipice than where it would only involve a tumble of a yard into soft snow. But to poise oneself in going down a series of steps that are merely tiny chips in hard ice tilted up at any angle greater than that of an average roof — this sort of work demands some skill, which does not come by nature but has to be acquired by experience. The only safe way, when a novice is of the party, is not to allow him to move unless the man to whom he is roped is firmly anchored; and this

course was repeatedly adopted on our descent. It was, however, when we had reached the ice-fall of the glacier that the incident occurred of which I have the most vivid recollection. The snow bridges over the crevasses had easily borne our weight in the early morning, when the frost still held them in its grip, but by the time we returned the sun had produced its effect, and I was not the only one of our party who went through in the fashion already described. Of course, the rope furnishes an absolute security, provided that the rest of the party are on what Mrs. Malaprop would call terra cotta; but I repeat that it is at first startling to find oneself swinging in vacancy over an apparently bottomless abyss. In a good many years of mountaineering I have encountered certain real dangers, but none, I think, which have impressed me so strongly as the imaginary peril of that sudden descent below the surface of the Aletsch glacier some thirty years ago.

But what times those were, and what heroes we thought ourselves when we arrived at the Bel Alp Inn! That modest hostelry, perched on the rock above the greatest ice-stream in the Alps, was then the regular summer quarters of Professor Tyndall, who was a delightful talker, although he rather resembled Æneas in interjecting a frequent "Quorum pars magna fui" into his stories. I remember, by the way, his describing one highly critical situation in which he found himself on the occasion of a solitary ascent of Monte Rosa. Nothing could be more rash, for the man who crosses a snow-field alone always exposes himself to the chance of perishing miserably in a concealed crevassse; whereas, if roped to a couple of companions, he is practically safe from this risk. However, Tyndall had successfully made his way to the top, having escaped the dangers of the glacier and conquered the difficulty of the final *arête;* and he was basking in the glorious sunshine which lighted up the Italian valleys far below, when, as he sat, he saw his axe, which he had placed by his side, gliding away over the snow. If it had fallen, nothing on earth could have brought him down alive; no human being could descend those steep slopes of ice alone without the help of an axe. The anxiety of the moment was tremendous, for it was out of his reach, and he could only gaze passively at it as it slid to the edge of the little plateau and nearly disappeared from view. Not quite, however, for the axe-head buried itself in a ledge a few inches below, and fortunately stuck there. The professor said it was his narrowest escape in many years of climbing, and he never again ascended a snow-mountain alone.

He was, I think, one of the earliest members of the Alpine Club, but he seceded after an unfortunate dispute, which arose in connection with his own unsuccessful attempts on the Matterhorn, and Mr. Whymper's ascent of that peak; and it was not till three or four years before his death that he again attended one of the annual dinners of the club, where he and Professor Huxley were among the guests of the evening. Both orated, but in the particular art of after-dinner speaking Tyndall was not the equal of his brilliant rival; and his labored and rather egotistical utterances contrasted unfavorably with the delicate persiflage of Huxley, who, by the way, chaffed him unmercifully on that occasion as being one of the goats and not one of the sheep — the goats who climbed the arid rocks; while the sheep — among whom Huxley reckoned himself — browsed contentedly on the rich pastures below.

One other experience of that first year of climbing may be referred to. From the Bel Alp I went on with my friend, the bishop in embryo, to Zermatt, whence we ascended Monte Rosa on such a magnificently fine day that we were able to spend more than an hour on the top of that splendid peak, from which we saw the plains of Italy spreading at our feet for many leagues beyond the Cathedral of Milan, and were even able to descry on the dim horizon a faint streak of blue, which

our guides seemed to experience a certain satisfaction in believing to be the Mediterranean. One of them, by the way, was young Peter Taugwalder, the companion of Mr. Whymper on the occasion of that first conquest of the Matterhorn which was attended by such terrible loss of life. He was certainly very efficient, and I shall not easily forget my feelings when, a day or two later, we were descending the glacier pass to the Mattmark See, and Peter proposed that we should have a "Schlitt-partie" or glissade. "But, Peter, is not that a crevasse just below?" I remonstrated. "Ja wohl, Herr; kommen Sie nur," was his only answer, and I was so much afraid of seeming afraid that I passively yielded, though the great gulf yawned below us, and descended to apparently bottomless depths. So we sat down on the snow, one above the other, each taking charge of the feet of the man behind him, and down we sped at lightning pace, to the obvious detriment of the garment most concerned. And when we came to the crevasse, the nearer lip of which was much higher than the farther one, our impetus carried us over it safe enough, although the sensation of shooting through the air over a tremendous abyss was decidedly a queer one. But these were first impressions, which soon gave way to unmitigated enjoyment; the fever of climbing set in acutely, and the end of my holiday left me an enthusiast, persuaded that no sport in the world had such charms as mountaineering.

Nowadays, every Swiss peak has been repeatedly ascended, and I think it was Mr. Leslie Stephen who once said that nearly all have gone through the three stages of being pronounced — first, utterly inaccessible; secondly, practicable but dangerous; and thirdly, a pleasant excursion for ladies. There is the obvious way to the top, there is an awkward and round-about route which a subsequent climber announces as a new discovery, and each fresh seeker after novelty has to adopt a course more circuitous and inconvenient than that of his predecessors. But I had the luck to begin mountaineering when there were as yet some summits that had never been made to "lie at the proud foot of a conqueror," and the unique charm of new exploration was then attainable. It must have been late in the sixties that, while aimlessly wandering in the Bernese Oberland, I came across an Alpine Clubman who besought me to go at once to one of the valleys lying between the Bernina Pass and the Stelvio, in order to anticipate some German climbers who were reported to be contemplating the conquest of some peaks which were then unscaled. I rushed down to Pontresina, now a sort of Northumberland Avenue in respect of the number and size of its hotels, but at that time a little village, with the Krone — then of very modest proportions — as almost its only inn. There I was joined by some friends, and we were lucky enough to secure the services of the best two guides in the Engadin. We hastily gathered together sufficient supplies for a few days' camping out, and made our way to the foot of the fine peak which was to be our primary object of attack. Our first night was passed at a shed built on a mountain pasture by some Bergomasque herdsmen. What handsome fellows they seemed, as the fire of our bivouac lighted up their swarthy faces, showing some signs of astonishment at the incursion of inhabitants of that outer world from which they are cut off. Their life, indeed, is spent with cattle: in winter and spring with cattle in the Italian lowlands; in summer and autumn with cattle they have driven up, often across snow and ice, to the rich pastures of the Engadin; yet their manners are almost polished, and they are intelligent enough within their limited range. They are skilled in all that pertains to the feeding of cows and the making of cheese, and have a shrewd knowledge of the ways and the instincts, the habits and the ailments of the beasts under their charge. The interior of the hut was one that Salvator Rosa might have

painted. The monster cauldron of polenta and cream steaming over the fire; the tall shepherds with their patriarchal crooks; a handsome Italian boy with dark inquiring eyes; two huge dogs of the wolf-hound type; our stalwart guides with their ropes and ice-axes; an obtrusive goat which, with designs on our supply of salt, insisted on entering, undismayed by the kicks received in several summary processes of ejection,—all these, lit up by the dancing flames, were sufficiently picturesque. The Bergomasquers were delighted to abandon their hay-loft to us; and near enough to the cows to make it possible to give them a friendly pat on the back through the rafters, our party of five packed itself as closely as twelve Sir William Harcourts in a twopenny omnibus. Sleep, however, was difficult, for one of our guides indulged in constant nocturnes on a nasal organ of exceptional power, while the dust of the hay set everybody coughing in turn, to say nothing of the fact that each cow seemed to have solved the problem of perpetual motion. At daybreak we began and finished our toilet by the simple operation of shaking ourselves, and presently we were stumbling over rocks and barking our shins in the dim twilight, and one of us, at least, was reflecting on his imbecility in voluntarily undergoing so much discomfort. But this sensation, not surprising in the natural man when still sleepy and weary, soon disappeared before a glorious struggle with tolerably formidable difficulties. As we made our way upwards the wind grew fiercer and colder, and now and then it whirled the snow in our faces in blinding eddies. The virgin peak which we had set ourselves to conquer glistened in the sunlight high above us, but it was not easy to select the line of attack. First we had to cross the ice-fall of a glacier, with a labyrinth of crevasses; then to make our way up a rock-face in which there seemed to be no projections on which to rest hand or foot; and finally, if we could manage to attain a point on this cliff some twelve hundred feet above the glacier, there was a *couloir* which had evidently been the channel of innumerable avalanches. As to the advisability of ascending this *couloir*, our guides differed, one of them declaring that it was too steep, and would involve too much step-cutting in hard ice, while he considered that it was by no means free from the risk of being swept by a fall of either snow or stones from above. But after some discussion of alternative routes, each of which seemed to possess still greater drawbacks, it was decided to try to reach the base of the *couloir*, and then to retreat if it seemed unduly hazardous. With the wonderful skill, blended with a sort of instinct, that characterizes a really first-rate guide, our leader cut his way through the intricate network of crevasses at the head of the glacier, now chipping notches for hands and feet in the steep side of some ice-cliff which had to be surmounted, now passing through some sub-glacial passage which the water had furrowed, but finally arriving at the big *bergschrund* which divided the ice-field from the crags. A snow bridge of rather unsubstantial character presented itself; and over this frail structure, with a span of some seven or eight yards over a drop of perhaps a couple of hundred feet, we proceeded to cross, one by one, being, of course, securely roped. But it was touch and go, for having done its duty as regards three of our party, the bridge gave way with the fourth, and fell with a tremendous crash into the chasm below, leaving our rear-rank man to swing pendulum-fashion over the cliff where we were firmly anchored, but which he only gained after some rather rough knocks. How we climbed those rocks I have never been able quite to understand. There was one particular ledge of which I have a vivid remembrance, the crag above overhanging so that there was no room to stand, and we could only wriggle along on all-fours; and at one corner it disappeared altogether. But here our leader, whose prehensile powers were unique, somehow managed to descend a few feet down the rock-face, and then, clinging

by his hands alone, contrived to work his way along until he could place his feet in a crack in the rock. It was the most wonderful piece of gymnastics that I ever witnessed; and when one thinks that it was performed over something like six hundred feet of air, one recognizes the coolness of the performer. Finally, we made our way to the foot of the ice, and a tough job was before us. The slope was poised at an inclination which, according to the clinometer, varied from 50° to 60°, or two-thirds of a right-angle; its snow was worn down by repeated avalanches into the hardest possible ice, and it stretched up for some seven hundred feet. The amount of step-cutting involved was enormous, and our head guide frankly confessed that he did not like the prospect. But even if we decided to beat a retreat, the route by which we had with difficulty mounted was still more awkward to descend, and on the whole the *couloir* seemed to offer our best chance. So we began painfully hewing our way, and for two hours and three-quarters we slowly progressed up that unblessed ice-shoot with an arctic north-easter freezing our bones, chilling our marrow, and ominously suggesting frost-bites. The occupation of looking through the legs of the man above you becomes monotonous, even when varied by the constant reception, on face and body, of the bits of ice chipped off in cutting the steps; and as fingers and toes get more and more numbed with the intense cold, it is harder and harder to avoid slipping out of the tiny notches which are all that the leader has time to allow in the way of steps. And though a slip of one of the party would not necessarily have pulled down the rest, and the rope theoretically afforded perfect protection, still I am glad the experiment was not tried.

Suddenly the guide gave the word to leave the channel of ice and take to the rocks on the side, for a snowball or two had rolled down from above, and he was afraid more might follow. Scarcely had we got out of our trough and up on the crags, when down came an avalanche with a vengeance, and we were within twenty feet of a tremendous discharge of thousands of tons of snow and ice, which swept down the track that we had just ascended. We were perfectly safe; but somehow the half hiss, half roar, remained in my ears for some time; and for many nights afterwards, when indigestible suppers or bad Swiss beer produced evil dreams, the avalanche was sure to figure in them. When the fall was over, we descended from our perches on the rocks, and again began the work of cutting our way up; but we did not reach the top until we had spent just two hours and three-quarters on that ice-slope, not including the ten minutes during which the avalanche had interrupted us. It was fortunate that we found ourselves close to the summit of our mountain, for we were on the windward side, and one of my companions had two of his fingers frost-bitten, though he had preferred to endure intense pain rather than say anything about it while we were in a critical position. Now we hurried along a gentle hill of snow to the top, and then promptly descended to some rocks on the southern face, where we proceeded, according to the traditional plan, first to rub the bluish flesh with snow, and then steadily to apply the roughest possible friction to the fingers affected. The remedy was heroic, and caused torture which my friend compared to the sensation of having a series of double teeth extracted continuously during a quarter of an hour. But the result was to save the fingers; and when we had basked for an hour in the most welcome sunshine that ever warmed mortal body, all was right, and we prepared, after a substantial meal, to tackle the descent. There was at first some difficulty in choosing the line to be taken, for the guides were agreed that it would never do to try to go down that *couloir*: first, because now that the sun was gaining power, avalanches were sure to be dislodged; secondly, for fear of frost-bites on that, the windward and at the same time the sunless, side of the mountain; thirdly, — but these two reasons were

quite enough, and we turned from the difficult and dangerous to what had seemed from below to be the impossible.

As often happens, near acquaintance altered the aspect of matters. The first two hundred feet of descent were tremendously steep, and, indeed, almost a sheer precipice ; but if once we could reach a small snowfield which curled round from the south to the east face of the mountain, the route seemed practicable. And at one point below the little plateau that formed the summit there was a succession of what might be called platforms, in a direct line with each other, though number one was merely a rocky projection some two feet square ; number two, some thirty feet lower down, was a big boulder that had somehow lodged on a small tooth of rock, and was poised as if ready to fall at any moment ; while numbers three and four were tiny hanging glaciers, partly protected by their position from the glare of the southern sun, which ought, one would think, to have brought them down with a crash long ago. If each of these perches should prove firm all would go well, otherwise we should be in a tight place. Fortunately, we had an ample supply of the tremendously strong Alpine Club rope, which in those days used to be made with a little silk thread running through it as a sort of trade-mark, and our leading guide volunteered to be let down the entire distance, so as to test the successive stages. When he came to the big boulder we were startled, for a slight push proved enough to disturb its equilibrium, and to send it hurtling down the mountain, starting in its course an avalanche, which roared and re-echoed through the valley. For a moment our guide swung into mid-air, entirely supported by the rope ; but he was able to reach a projecting ledge, and to shout to us that, so far, "es geht famos." Down below, too, he reported that the little ice patches were sufficiently adherent to the rock ; and finally we all managed to descend, one by one and stage by stage, though I am afraid that the amount of danger which the last man had to face was almost unjustifiably great. The rope on which he depended had at first to be hitched round a rock, so loosely as to be detachable by a jerk from below, and then, lower down, had to be anchored to an axe driven into the ice ; and this axe had eventually to be abandoned, as nobody could face that last bit of descent without support. However, all went well, and at the bottom of the lower patch of ice all our difficulties were over. We found ourselves at the head of a series of snow-slopes, obviously constructed for the special purpose of furnishing glissades for mountaineers, and in a very short time we were two or three thousand feet lower down, with nothing but a long *moraine* between us and the upper pastures. It is true that there is nothing like the sharp stones of a *moraine* for trying wet boots and hot tempers ; but though our boots were cut to pieces, the success of our climb outweighed all small drawbacks, and we returned to our damp beds in the hut supremely happy, although the heat of the steaming hay made me convinced in my dreams that I had somehow been converted into a cucumber in a forcing-pit, and that the gardener was trying to suffocate me by refusing to open the frame and let in the air.

I have just given an illustration of one sort of danger — that of avalanches — which is not always avoidable, and I may mention another into which I was once induced to rush, and which very nearly cut short my career in the mountains, and, indeed, on this planet generally. It is a first principle among mountaineers that there ought to be at least three men on a rope. If one man slips, or breaks through the snow overlying a concealed crevasse, two companions ought to be able to hold him up ; but if he has only one, that one may easily be dragged down. So I ought to have known better when, nearly a score of years ago, I had engaged the then well-known Alexander Lochmatter of Macugnaga to act as my chief guide, and, on there being some

difficulty in obtaining a second man, I allowed him to persuade me that we two, who knew each other's capabilities pretty intimately, might well do our climbing without anybody else. For a few days all prospered, and we climbed one or two peaks and passes to our mutual satisfaction, taking care to keep the rope taut in doubtful places, and each, from time to time, holding the other up when the snow proved treacherous. Lochmatter was particularly anxious that we should ascend Mont Blanc, in order to show the Chamonix guides that they had no right to a monopoly of the "Monarch of Mountains;" and as the track is, in fine weather, one up which you could almost drive a cow, as there is scarcely any climbing, and only a long and tiring trudge up snow-slopes, I had no hesitation in undertaking the expedition, for which, by the way, there was a precedent, — for had not so experienced a climber as A. W. Moore made the ascent from the Aiguille du Goûter accompanied only by Christian Almer? But though the weather had been fine, no sooner had we reached the chalet at the Grands Mulets, where we intended to sleep, than clouds covered the sky, and by three o'clock in the afternoon there was a tremendous snow-storm, with a raging gale which lasted all night. In the morning it was snowing still, and retreat was inevitable, so we made our way downward over the Glacier des Bossons, which was covered with a thick layer of snow. Lochmatter led; I followed carefully in his footsteps at a distance of some three yards, and the rope was taut between us. Suddenly I found the snow give way under my feet; but instead of being held up, I was only for an instant checked by a jerk, and then down came Lochmatter nearly on the top of me. We had, without knowing it, been walking on a thin crust concealing a big crevasse, so when Lochmatter, feeling the tug at the rope, had stuck his axe into what he supposed to be firm ice, it went into vacancy. I had only just time to think that we were done for, when our fall was suddenly stopped, some five-and-twenty feet down, by a tremendous block of ice, which had tumbled athwart the crevasse at the precise spot. If we had been a few yards one way or the other, we should have inevitably gone to the bottom, and relics of us would probably have been brought to light at the foot of the glacier in some forty years. I do not know the depth of that crevasse; I can only say that its icy walls went down and down till they ended in darkness. But a good providence willed it that we should find safety at that particular place; and as the hummock of ice was well covered with snow, we escaped without much damage. Indeed, as my fall had been broken by the jerk of the rope which pulled down Lochmatter, I had nothing worse than a few cuts and scratches, while he, falling the whole five-and-twenty feet without a check, had received a blow on the head which stunned him, and for a moment or so, as he lay insensible, I feared that he might be seriously hurt. He soon came to, however, and though he had lost his axe, which is still in the depths of the glacier, I had held to mine, with which he was before long able to cut steps in the wall of ice up which we had to make our way. Before we reached the top we heard a shout, and it turned out that a party who, without our knowing it, were close to us, had seen the accident, and had hastened to the spot. They let down a rope, by which we were in turn hauled up, very thankful to have escaped from a great danger. I mentally vowed never again to be one of only two men on a rope; but Lochmatter went a good deal further than this. He declared that nothing should induce him ever to set foot on a snow mountain again; and though he had earned some celebrity as a fine and daring mountaineer, though he was absolutely uninjured, and in the full vigor of life (about thirty-three, I fancy), he forthwith abandoned his profession of guide, at which he could command exceptionally high pay, and took to driving a fly between Zermatt and St. Niklaus. Only a few years

ago, just before the opening of the Zermatt railway, I was crossing the Ried Pass, when my guide, the well-known Imboden, happened to tell me the story of another member of the fraternity, who, a score of years before, had received such a shock from a narrow escape that he had given up guiding and taken to cab-driving, and I was interested to find that Lochmatter was the man in question, and that he was still engaged in an occupation of which the monotony was in curious contrast with the adventures of his previous career.

I have thus described the only two accidents that have befallen me in the mountaineering of many years, and though both were close shaves, I am not sure that my life has not been in greater peril on more than one occasion from the Mr. Winkles of shooting-parties, if not from the chances of amateur yachting. In fact, most amusements have a spice of danger in them, and I doubt whether mountaineering has more than, for example, either shooting or hunting. I fancy that no accident in the Alps has excited public feeling more than that on the occasion of Mr. Whymper's first ascent of the Matterhorn. I was specially shocked by the news, as poor Hadow and I had played many a cricket-match together, and only a day or two before he started for Switzerland he came to see me at the Privy Council office. I happened to be treasurer of a club to which he belonged, and when he told me that he was going abroad with Hudson, celebrated as an ardent mountaineer, I laughingly said to him, "Well, if you are going to break your neck in Switzerland, you had better pay me your subscription before you start," to which he rejoined that I might be easy about his coming back, as Hudson was not going to take him mountaineering that year. In less than a fortnight the poor fellow was killed, and when the telegram came, one of my colleagues recalled our conversation. Nobody else, I think, of my many mountaineering friends has ever lost his life in the Alps; for I am sorry to say that with Donkin, who was swept away by an avalanche in the Caucasus, and who was a delightful companion and the cheeriest of men, I had no more than a slight acquaintance.

There was one old ally of mine, however, among the pioneers of mountaineering, whose comparatively early death was mainly due to the effects of the fever which he contracted in the marshes of the Rion River on his return from the expedition in which Elbruz, the highest of European mountains, was first ascended in 1868. A. W. Moore was a man of singular ability as well as of infinite humor, and when Lord Salisbury was secretary of state for India, Moore was his most trusted subordinate, and was the draughtsman, often on very slight instructions, of the most important despatches which emanated from the "political and secret" branch of the department, at a period of crisis in our Indian frontier policy. When Lord Randolph Churchill became Indian secretary in 1885, there was an amicable contest between him and the premier as to who should have Moore as private secretary; and Lord Salisbury was persuaded to yield, on the ground that Lord Randolph was new to the office, and ought to have the benefit of Moore's experience. The result was, that Moore devoted himself with much self-sacrifice to his chief, and eventually broke down under the strain, which was accentuated by relapses of the old marsh fever. His doings in the Alps were tremendous, and the new peaks which he conquered make a long list. Some notion of his powers of endurance may be formed from the fact that he once started from Courmayeur, ascended to the summit of Mont Blanc, and went down to Chamonix, all within the compass of a single day of twenty-four hours. I myself used to be rather proud of having been the first to go up the Jungfrau from the Eggischhorn hotel in the morning, and return there to *table d'hôte* in the evening, after accomplishing in eighteen hours what had previously always occupied two days; but, of course, this was nothing compared

with Moore's tremendous expedition from valley to valley over the head of Mont Blanc. And he described as well as he climbed. Some of the best papers ever published on mountain travel have come from his pen, and a copy of his privately printed "Mountaineering in 1864" sold a few months ago for £10 at a public auction. His wit was of the kind that flashes, and can be scarcely sketched in words, but it was extraordinarily ready. One of his friends of the Alpine Club, who had named each of three or four children after particular Swiss peaks, once applied to him to suggest suitable names, on the same lines, for twins that had recently arrived. Quick as thought came the answer, "Of course you must call the boy 'Monty' and the girl 'Rosa.'" It would be easy to recall dozens of good things, varying from mere verbal quips to brilliant but not ill-natured sarcasm, which were poured out spontaneously when Moore was in the vein; and few men were better company.

Another Alpine veteran, of whom I saw a good deal, was the late Frederick Pratt Barlow, who had also a merry wit, and who published some admirable accounts of his expeditions on the Grivola, the grand Paradiso, and one or two other peaks. Many students of Alpine literature will remember his delightful story of the straits of hunger and thirst to which his party were once reduced in the mountains, till they came across some goats that demanded to be milked; how a pail was wanting, so Jakob Anderegg threw himself on his back to suck an elderly matron of the flock, who vigorously objected to the teeth of her red-bearded offspring; how she managed to plant one hind foot in his mouth, the other in his eye, and with a tremendous kick sent him rolling over and over on the turf, where he lay, his disreputable old sides shaking with laughter. Barlow was the first to make the interesting and difficult ascent of Monte Rosa from the Zumstein Sattel; his experience of the Alps was very extensive, and his love of exploration carried him to some little known regions of Burmah, where, by the way, he contracted the chest illness that eventually carried him off, to the great grief of a very wide circle of friends.

Still, I am glad to say that the losses in our brotherhood of mountaineers have been comparatively rare, while the friendships cemented in the Alps have been numerous and lasting.

Our Alpine Club dinners have annually brought together a large number of lovers of our special pastime, and a good many distinguished men have figured at them. For many years Mr. Leslie Stephen, himself one of the pioneers of mountaineering, never failed to delight us with his brilliantly humorous oratory; and Mr. Justice Wills, the author of the charming "Eagle's Nest," and the conqueror of many a virgin peak, showed himself an excellent after-dinner speaker. It must have been about a dozen years ago that the late Lord Coleridge, who entranced the club with his silver-tongued eloquence, made the confession — singular in the mouth of a relative of the poet who first showed the appreciation of mountain beauty — that he had never seen a snow peak, and that it was only from description that he could attempt to appreciate the poetry, the dangers, and the glories of the Alps. On the same occasion, by the way, we heard from Mr. Matthew Arnold one of those characteristic speeches in which the mingled wit and poetry forced one to ignore the curious awkwardness of his delivery. But it was at another Alpine Club dinner that a very short oration evoked the most tremendous roars of laughter that ever proceeded from a couple of hundred throats well braced by Swiss air. A distinguished traveller who had made the ascent of an Asiatic mountain (which may be here called "Upapol") was to return thanks for the visitors; but though he was a bold mountaineer, he was a timid orator. "Got to make a speech?" said a friend whom he consulted at the club. "Then there is nothing like taking a glass of sherry and bitters first." So said other

friends, one after the other, and on each occasion the prescribed dose was conscientiously swallowed. The effect, on a nervous organization, was nothing less than confusion worse confounded. So when his achievement had been described in glowing terms by the proposer of the toast, and the celebrated explorer rose to reply, he contented himself at first with smiling blandly at his audience for a minute or two, as he swayed backwards and forwards. Then he began, "Gentlemen, Upapol is seventeen thousand levels above the feet of the sea." There was a roar of Homeric laughter; but the orator smiled still, and continued, "No, that is all —— nonsense. Of course, I mean twenty thousand seas above the level of the feet." Another shout made him think that this statement, too, had something wrong about it, and then he gave up his task in despair, and we never heard particulars of an ascent which we were quite prepared to celebrate as the most remarkable feat of modern climbing. It was at another — but I fancy that the readers of "Maga" may be getting tired of reminiscences possibly less interesting to the public than to the reminiscent, and I defer to some future opportunity any further account of the Alpine Club and its doings. For the present, to quote an Irish M.P.'s apology to the speaker, I withdraw what I was going to say.

H. PRESTON-THOMAS.

From The Gentleman's Magazine.

UNCONQUERED MITHRAS.

AMONG the new religions which took deep root upon the ruins of Roman polytheism, the cult of the Oriental god Mithras occupied a place second only to Christianity. In its origin it seems to have been a very pure form of solar worship, which prevailed amongst the ancient Persians, who, as Herodotus tells us (1. 132), raised no altar, lit no fire, poured no libations, but when one of them desired to sacrifice he brought his victim to a spot of ground free from pollution, and there called upon the name of the god to whom he intended to offer; and Strabo, adopting his account, adds (15. 3) that they worshipped the sun, whom they called Mithras. But in process of time, and especially as it spread westward, this ancient form of belief became so overlaid with detail and mysticism that it lost its pristine character. It found its way to Europe somewhat earlier than Christianity, but, as a Roman religion, it may be considered contemporary with that of Christ, by whose disciples it was regarded as a very formidable and dangerous rival. For a long period the two religions flourished side by side. It has been alleged that the Christian Church adopted many of its doctrines, and, so far as concerns the heretical sects of the Gnostics and Basilidians, that is no doubt true. Both systems naturally showed points of contact, especially as regards that mystic symbolism which was characteristic of the religious thought of the age, and they may have mutually borrowed ideas from one another; but in the main they were very distinct, and when Christianity eventually obtained the upper hand, and became the established religion of the State, it made very short work of stamping out the puerile teaching of its opponent. We have very little certain knowledge concerning the worship of Mithras as it prevailed amongst the nations who composed the Roman Empire, and that for two reasons: first, because it was essentially a secret and mystic cult; and, secondly, because the enthusiasm and jealousy of the early Christians led them to take extraordinary pains to extirpate its doctrines.

Many volumes have been written by foreign savants upon the Mithraic creed, but they contain much that is purely conjectural and fanciful. It will, therefore, be my endeavor to lay before the reader some exact information upon this somewhat difficult subject.

Plutarch states (Life of Pompey, c. 24) that the Romans learnt the worship of Mithras from the Cilician pirates

who infested the Mediterranean, and were eventually exterminated by Pompey about the year 67 B.C. Then we have in St. Jerome's epistle to Læta an allusion to the destruction of a Mithraic temple at Rome by Gracchus, when prefect of the city in 376 A.D. We thus obtain two dates which mark the rise and decline of a religion that flourished in the Roman world for a period of four centuries and a half.

Mithras is sometimes represented as a human being with a lion's head, but more usually as a youth wearing a Phrygian cap, tunic, and trousers, with a short flowing cloak around his shoulders. Lucian ridicules his foreign appearance: "There's that Mithras the Mede, with his *candys* [Oriental tunic] and *tiara* [Phrygian cap], who cannot speak Greek, and does not even understand when people are drinking his health." (Council of the Gods, c. 9.)

It was taught in the mysteries that Mithras was sprung from a rock. Commodian calls him "the unconquered god born of a rock" (Liber Instructionum, 13), and Maternus mentions the stone of the idolaters of which they say θεὸς ἐκ πέτρας (De Errore Profan. Relig. c. 16). This is sometimes explained as a reference to the spark of fire that flies from the stone when it is struck, but the worship of Mithras was, as we shall presently see, always, for some reason or another, connected with rocky caves, and so the story may have had some deeper significance. Indeed, it is difficult to say what is the precise origin of such an idea as this, so far back does it lie in the mists of antiquity. According to popular opinion of later days, Mithras himself had a son, named Diorphus, born of a stone. (Plutarch, De Fluviis, 23.)

Father Montfaucon, in his Italian diary, written in 1698, describes a remarkable marble statue of Mithras, which had been recently discovered in the vineyard of Horatio Muto, near St. Vitalis, at Rome. It stood in an underground vault surrounded by a number of small earthen lamps, with wick pointing inwards. It had a lion's head, and a human body enveloped in the coils of a serpent. Four wings grew from its shoulders, two pointing upwards towards the sky, and two depending towards the ground. Its feet rested upon a globe, and each of its hands grasped a key. A Jesuit priest had pronounced the image to be that of the devil, who reigned in the world in the time of paganism, and Montfaucon, after making every endeavor, without avail, to see the statue, came to the conclusion that Muto had sent it, at the instigation of the Jesuit, to the lime-kilns to dry up the damp which it had absorbed by lying so long in its subterranean mansion, or that, by the latter's order, it had returned to hell!

The god was similarly represented upon a bas-relief, which was shortly afterwards discovered at the same spot. The figure had a lion's head, and was draped from the waist downwards. It stood beside a lighted altar, with its arms extended, and held a flaming torch in each hand. From the midst of its four wings a serpent emerged and encircled it, and from the figure's mouth issued "a fillet" (probably a tongue of fire) which waved over the altar.

The lion-headed man frequently appears on ancient gems, with the inscription "Mithras." The four wings are an Oriental conception, and are familiar objects upon Assyrian monuments. They are probably intended to denote supernatural powers of locomotion. The globe on which the figure stood indicated the universal dominion of the god, while the torches are emblematical of the heat and light of the sun, and the keys of his power of penetrating the innermost recesses of heaven and earth. It was perhaps a misunderstanding of these and other symbols which gave rise to the vulgar notion that Mithras was a cattle stealer: —

> Insuper et furem adhuc depingitis esse:
> Vertebat boves alienos semper in antris.
> COMMODIAN, Instruct. 13.

That is to say, "You depict him be-

sides as a thief ; he was always hiding other people's oxen in caves."

The serpent coiled around the statue represented the sinuous course of the sun amongst the constellations of the heavens. If any evidence is needed in support of this assertion, it is furnished by the discovery at Arles of a broken statue, evidently representing Mithras, described by Montfaucon. A serpent is coiled around it four times, and in the intervening spaces are sculptured the signs of the Zodiac.

The Mithraic temples were usually adorned with a great icon, or sculptured representation of the god in the act of slaying the mystic bull *in a cave*. He is arrayed in the conventional costume of the East — a sleeved tunic, trousers, and cloak — and wears the Phrygian cap (or "cap of liberty," as it is sometimes called). He kneels upon the fallen bull, which he grasps by the jaw with his left hand, while with his right he plunges a dagger into its neck. The sacred raven (*hierocorax*) hovers above his head, a lion crouches by his side, while a dog, a serpent, and a scorpion appear to aid him in his task, and to participate in the slaughter of the dying victim. On the right and left of the group stand two attendant genii, arrayed like Mithras, and holding lighted flambeaux in their hands. One of them holds his torch erect, the other his torch reversed. One of these typical groups found at Rome, and engraved in Montfaucon's great work, "Antiquity Explained," contains some significant details which it may be worth our while to notice. On the right-hand side of the sculpture appears a tree covered with leaves, to the boughs of which are attached a lighted torch and the head of the bull Taurus (the sign of the vernal equinox), on the left is another tree, laden with fruit, from whose branches hang a reversed and extinguished torch and the scorpion (the sign of the autumnal equinox). In an upper panel of the sculpture, we see on the right a representation of the moon in a car drawn by two horses, who are falling exhausted to the earth ; on the left, a personification of the sun in a chariot, to which are attached four prancing steeds. In the space between the two chariots are seven flaming altars, symbolical of the seven known "planets" or wandering bodies of the heavens — viz., the Sun, Moon, Mars, Mercury, Jupiter, Venus, and Saturn. In front of these altars stands a winged figure of Mithras with a serpent entwined four times around his body. The entire picture is obviously of astronomical significance, and represents the annual course of the sun, from the period when it rises in the constellation of the Bull, at the vernal equinox, and ascends to the zenith of its glory, giving new life to nature, until the time when it again declines in power as it descends at the autumnal equinox and returns to the winter solstice.

So far the cult is intelligible, and is only one of many forms of solar worship ; but now comes in the mystic or hidden teaching, and for an elucidation of this part of the subject we must turn to the pages of a fanciful commentary which Porphyry has written upon a certain "cave of the nymphs," alluded to in Homer's Odyssey, and which incidentally throws much light upon the little understood doctrines of the worship of Mithras. That writer says : —

> The Persians, when teaching in a mystery the descent of souls to earth, and their reascent into heaven, perfect the initiate, calling the place a "cave." For Zoroaster, first of all, consecrated among the neighboring mountains of Persia a natural cave, overgrown with flowers, and containing a spring of water, to the honor of Mithras, creator and father of all. And after him the custom prevailed amongst others of performing the initiations and sacred rites in caves and grottoes, either natural or artificial. (De Antro Nympharum, 6.)
>
> Plato says that there are two gates or "mouths," through one of which souls ascend into heaven, and through the other of which they descend to earth, and the theologians constituted the *Sun* and *Moon* gates of souls who ascended through the sun and descended through the moon. (Ibid. 29.)
>
> Homer, too, mentions gates of the sun, by which [says Porphyry] he means *Cancer*

and *Capricorn*, for to these points the sun proceeds when descending from the north to the south, and when ascending again from the south to the north. But Capricorn and Cancer are close to the Milky Way, and occupy its extremities, Cancer the northern and Capricorn the southern. (Ibid. 28.) The north and south are, therefore, places proper to the birth and decease of souls. To Mithras accordingly they assigned a proper seat at the equator, and he bears the sword of the Ram (which is the sign of Mars); he is carried upon the Bull, because Mithras, like the Bull, is the creator and lord of generation. He is placed at the equator, having the north on his right and the south on his left. (Ibid. 24.)

According to Pythagoras, souls are a crowd of dreams, who assemble in the Milky Way, which derives its name from the souls who are nourished with milk when they descend to generation, and for that reason those who invoke souls pour to them libations of honey mingled with milk, because they are wont to come by the attraction of its sweetness into generation, for milk is produced at the same time as souls. (Ibid. 28.) And the ancients used to call the moon, which is the queen of generation, the "*Bee*," and they also call the moon the "*Bull*," and the exaltation of the moon is the Bull. Bees are born of the bull (*βουγενεῖς*), and so also are souls proceeding to generation. (Ibid. 18.)

The theologians make use of honey as a symbol of many different things, because it possesses various virtues, for it is valued for its property of cleansing and preserving, and by means of honey things are rendered incorruptible and old sores are cleansed. It is sweet to the taste, and is collected from flowers by bees, which are born of the bull. When, therefore, they pour honey, instead of water, on the hands of those who are initiated into the "Lion" mysteries of Mithras in order to wash them, they exhort them to keep their hands pure from all that is painful, injurious, and impure. (Ibid. 15.)

Macrobius, in his commentary on "Scipio's Dream" (Book I. 12), gives a similar account.

Through the gates of Cancer and Capricorn souls are believed to pass from heaven to earth, and to repass from earth to heaven. Cancer is called "the gate of men," because by it a descent is made to this lower world. Capricorn is called "the gate of the gods," because by it souls return to the seat of immortality which is proper to them, and are numbered with the gods. Pythagoras, therefore, considers that the realms of Dis (Pluto) extend from the Milky Way downwards, because souls which have descended to that locality appear to have already withdrawn themselves from the upper regions, and it is on that account, says he, that a first nourishment of *milk* is offered to them at birth, because their departure from the Milky Way commences when they descend into earthly bodies. And so, as long as souls destined to descend remain in Cancer, they have not yet left the Milky Way, and are still of the number of the gods, but when, in the course of their descent, they reach the Lion, then they enter upon a commencement of their future state.

What strikes us particularly in reading the above-cited passages is the fact that these mysterious doctrines of the East found a place in the writings of the Greek philosophers, Pythagoras and Plato, centuries before the introduction of the worship of Mithras. The soil was consequently prepared in advance for the dissemination of that religion, and its rapid development and popularity among Western nations is, to some extent, accounted for.

In the great icon the moon and sun are frequently substituted (in accordance with the foregoing Platonic account) as gates of descending and ascending souls for Cancer and Capricorn.

The cavern in which the Mithraic mysteries were celebrated represented, astronomically, the winter solstice, to which the sun declines, and from which it again arises every year, but in the mysteries it was a symbol of this earth (De Antro, 5 and 9), to which, as we have seen, souls were believed to descend through the gate of the Tropic of Cancer (the sign of the summer solstice when the sun is in the northern hemisphere), which is represented on the icon by the genius with an uplifted torch, typical of birth. The bull was a mystic symbol of generative power, and, through its blood, souls born on earth obtained new life. *Taurobolio in æternum renatus*, "Regenerate

through the blood of the bull," was the inscription engraved upon the tomb of a devotee of Mithras. The dog, serpent, and scorpion, originally astronomical signs, seem also to have contained a reference to the same generative power. Souls were compared to bees, because the latter were popularly believed to be generated from the bodies of dead bulls. We find an allusion to this singular belief in the 4th book of the Georgics, line 555, where swarms of bees (apt symbols of fecundity) pour forth from the carcasses of bulls slain in sacrifice; and Virgil elsewhere compares the souls of the blessed to "bees which, in meadows, on a serene summer's day, sit on varied blossoms, and swarm around snow-white lilies" (Æneid, 6).

The followers of Mithras were further taught that the soul when clothed in human flesh was obliged to undergo a sevenfold initiation on earth. A passage in St. Jerome's 7th epistle to Læta, already noticed, mentions the symbols which gave names to these seven initiatory rites.

"Did not your relation Gracchus," says he, "a few years ago, when he filled the office of prefect of the city, overturn, break, and burn the cave of Mithras and all the portentous images, under which are initiated *Corax* the raven, *Gryphus* the griffin, *Miles* the soldier, *Leo* the lion, *Perses* the Persian, *Heliodromos* the sun's course, and *Pater* the father, and, having given these pledges in advance, obtain the baptism of Christ?" And Porphyry adds: "In the mysteries of Mithras, those who are partakers of the sacred rites are called, if men lions, if women lionesses, the acolytes are called ravens, and the fathers in a similar manner are called eagles and hawks. Those who undergo the 'lion' initiation assume the forms of various animals, and it is the common opinion of mankind that these symbols relate to the nature of the zodiac" (De Abstinentiâ, iv. 16). The initiations were commonly termed *Coracica*, *Leontica*, *Persica*, *Heliaca*, *Patrica*, etc. In the Leontica, as we have seen, the hands of the initiate were washed with honey. The "soldier," at his initiation, had a crown presented to him with a sword interposed (a travesty of martyrdom), and he was instructed to dash it from his head, saying, "Mithras is my crown!" (Tertullian, De Corona, c. 15.)

After death the soul of the votary of Mithras was believed to ascend to bliss through the gate of the Tropic of Capricorn (the sign of the winter solstice when the sun is in the southern hemisphere), which is represented upon the icon by the genius with a lowered torch, typical of death. But in the course of its ascent it had to pass through seven more tests, corresponding to its seven initiations on earth. For Origen says: —

> Celsus, like Plato, affirms that the path of souls to earth and from earth again passes through the planets, and, in order to display his varied knowledge, introduces into the work which he has written against us certain Persian mysteries, for he writes: "The doctrine of the Persians and the worship of Mithras peculiar to them have a symbol of the two revolutions (or periods) of the heavens — namely, that of the fixed stars and that of the planets, and the passage of the soul through the latter. That symbol is a ladder set up on high from one 'gate' to another in succession, until it reaches the entrance of the eighth gate. The first of these gates is of lead, the second of pewter, the third of brass, the fourth of iron, the fifth of mixed metal, the sixth of silver, and the seventh of gold. The first gate they assign to Saturn, indicating by lead the slow movement of that planet; the second to Venus, comparing to it the brightness and softness of pewter; the third gate of solid brass to Jupiter; the fourth of iron to the planet Mercury, because iron, like the god Mercury, is patient of toil, beneficial to trade, and equally famous amongst men; the fifth gate of mixed metal they assign to the planet Mars on account of its unequal and varied composition; the sixth gate of silver to the Moon; and the seventh of gold to the Sun, in reference to the colors of those heavenly bodies." (Contra Celsum, Book VI., 11, 12.)

This passage explains the winged figure who is pictured in the Mithraic

icon as standing in front of seven altars. It is the perfected soul, who has passed through the seven planetary gates, and has reached the fixed stars, or heaven of perfect bliss.

This passage explains the winged figure who is pictured in the Mithraic icon as standing in front of seven altars. It is the perfected soul, who has passed through the seven planetary gates, and has reached the fixed stars, or heaven of perfect bliss.

Before presenting himself for initiation into the mysteries, the devotee subjected himself to certain ordeals, as a preparation for what Himerius the Sophist (Orat. vii. 9) calls the "better life." Elias Cretensis, in his commentary on the works of St. Gregory Nazianzenus (Orat. 4), says: "No one is admitted to the sacred rites of Mithras unless he has first undergone all the different kinds of torment, and has given a proof of his piety and fortitude of mind in suffering pain. It is said that there are eighty different kinds of torture, through which the person desiring initiation must of necessity pass in a certain order. First he must spend many days in the water, then he must cast himself into the fire. After that he must live in a desert, and impose fasting upon himself. And in this manner he must proceed, until he has exhausted the eighty kinds of torture. And if he survives them, then at length he is initiated into the sacred rites of Mithras."

These severe rules of discipline must have been greatly relaxed in the case of all except fanatics, for this species of self-mortification, which finds such favor among Orientals, is not likely to have commended itself to Western minds, or to have become popular amongst the Roman public. Besides, we find that women and children became initiates of Mithras.

The pseudo-Christian sects, known as the Gnostics and Basilidians, worshipped the sun under the names of Abraxas and Mithras, and both these mystic names were found to contain the number three hundred and sixty-five, that is the number of days in the solar year. (St. Jerome's Commentary on Amos.) Thus, if we give to each of the Greek letters its proper numerical value, we obtain:—

A	1	M	40
B	2	E	5
R	100	I	10
A	1	TH	9
X	60	R	100
A	1	A	1
S	200	S	200
	365		365

But the latter name appears to have been deliberately misspelt in order to arrive at the desired result!

The Gnostics have left immense numbers of engraved gems, which they used as charms or amulets, and on them the sun is represented as a lion-headed man, a lion, or a lion-headed snake crowned with rays, together with many other Mithraic symbols, such as the bee, the crescent moon, the seven planets, and the eight-rayed star.

It is not surprising that the early Fathers regarded some of the Mithraic mysteries as Satanic parodies of Christian ceremonies. Tertullian says: "The devil himself imitates, in the mysteries of idols, the very details of the divine sacraments, and he himself baptizes his believers and faithful, and promises them remission of sins by that ablution, and Mithras signs his own soldiers upon the forehead, celebrates an oblation of bread, and exhibits a symbolical representation of the Resurrection." (De Præscriptione Hæreticorum, c. 40.) And Justin Martyr adds that the devils took bread and a cup of water in the sacrifices of those who were initiated into the mysteries of Mithras, and pronounced certain words over them, in imitation of the Christian rites. (Dialogue with Tryphonus, c. 70.) A Mithraic temple discovered at Spoleto consisted of a long subterranean corridor, at the east end of which were three niches that had once contained statues of the god and his two attendant genii, but the shrine had been rifled, and the statues had disappeared. In front of the niches was an altar with the inscription, "Soli invicto Mithræ sa-

crum," and beside it stood a rough-hewn stone shaped like a sugar-loaf, with a square orifice cut in its side to represent the hole in the rock from which Mithras emerged at his birth. Among other objects found here were a large prism-shaped stone, some fragments of a terra-cotta image of the god, a little bone statue of a priest crowned with laurel, who kneels and plays upon a lyre; two other figures of a priest dressed in a red tunic, with a green band upon his left arm, and a green veil upon his head, holding in his right hand a bill-hook, and in his left a cup; a figure of a priestess arrayed in a red mantle lined with green, and offering a cup; a sacrificial knife, and a small bronze cross adorned with busts of the sun and moon, who are represented with nimbi around their heads. (Archæologia, 47, 205.)

In another artificial cavern at Ostia the great icon occupied the east end, with an altar before it, and in a sort of side chapel were seven other altars, sacred, it may be assumed, to the seven planets. (Archæologia, 48, 19.)

A cave temple was discovered some years ago upon a hillside at Housesteads, Northumberland. A spring of water flowed through it, and there were extensive foundations of a building connected with the exterior of the grotto. At the west end stood a half-length statue of Mithras enclosed in an oval shrine, upon which were sculptured the twelve signs of the Zodiac. On the right and left of this shrine stood two altars, one inscribed "To God the sun, unconquered Mithras the eternal," and the other "To God the best and greatest, unconquered Mithras the eternal;" and the names of the consuls which appear upon the latter indicate that it was dedicated in the year 252 A.D. Facing the shrine was a broken fragment of the conventional icon representing Mithras slaying the bull. These relics are preserved at Newcastle-on-Tyne. (Hodgson's Northumberland, vol. 3, part 2.)

We have now noticed all the salient points connected with this very mysterious religion, and the passages which are referred to in this brief account will enable the reader who is desirous of further pursuing the subject to investigate more fully the details of the worship and ritual of the "unconquered god." THOMAS H. B. GRAHAM.

From Macmillan's Magazine.

WHEN WE WERE BOYS.

III.

WHEN we were boys, the first magpie's nest that we found came upon us as a great surprise. We did not discover it until it was fully grown and had eggs in it. A fully grown magpie's nest is a large object, and the fir-tree in which it was built was not a particularly big or bushy one. The truth is that the magpie did not advertise its nest in the way that so many birds did for us. The wood-pigeon would sit and coo; the blackbird would flit restlessly about and chuckle when we came within the neighborhood of its home; most of the birds would show uneasiness in one form or another and so betray themselves. But the magpies, — we saw afterwards how they managed. When they left the nest, or came back to it, they flew right far away, or straight in as the case might be. There was no flitting about with them on the branches beside the nest. Even when they were building they must have brought the materials from some little distance, so that we should not see them collecting the sticks. We could scarcely believe our eyes when the sight of the great structure met them first. There, inside the thorny dome, were six beautiful eggs, lying on the firm, clean, mud lining. We took one only. Joe did not really care for eggs; he only strung them and hung them, till they were broken, over the china shepherdess on the coachman's mantelpiece; he had no real collection. One, he said, was enough for us; he had other views with regard to the prospective magpies which the eggs represented. It appeared that there was a certain demand among his friends and relations for young

magpies, and for them he would take all but one. That one, however, we were to be allowed to pick out of them all; moreover, had we not already got the egg? The egg in the present,—the bird in the hand, so to speak,—was our real comfort and support under the trial of this rather unequal division. A boy will always look at the present good; how fat one could grow out of trading with boys, if only they ever had anything more valuable than a slate-pencil to exchange with you!

The magpies were safely hatched, and grew in wisdom and wickedness as nothing not of the corvine race will ever do. After all we left the parents one youngling, not so much out of mercy as because it was a very weakly bird and we were doubtful of being able to bring it up. We took a certain artistic pride in bringing our young birds up; a failure humiliated us; a vigorous adult was a glory to us, whereby we advertised ourselves as proudly as a "Crammer" advertises himself by the boys he has passed into Sandhurst. So we rejected the one young magpie as a probable failure, and left him to be brought up at home. Our entreaties moved the butler to give us an old packing-case. Joe had obtained from the village carpenter some wire-netting on credit; the security given being a promise that when the magpies were three weeks from the nest the carpenter should have second choice of them. The wire-netting, for which Joe had thus mortgaged our second-best magpie, he cunningly nailed across one side of the packing-case, and the magpie's cage was ready. They did marvellously well. Their mouths were always gaping ready to receive the balls of moist oatmeal which we delighted in thrusting down them. They knew no fear. On fine days we would take their cage out and set it in the sun a while, careful to leave them one shaded corner. After a time they grew to attract the favorable notice of the under-gardener. He drove two strong iron stays, for us, into a wall of the "cow-linhay," and thither the young magpies were transported after a week's languishing in the less distinguished obscurity of the wood-house. Really it was a great step up in life for the magpies; for the cow-linhay was just on your left as you came into the stable-yard, so that any visitors to the stables must almost of necessity see them. Here they became objects of general interest; of interest even to some of those in high authority who were so ignorant as to hold absurd and immoral heresies, based on the nursery-rhyme, about the conjugal relations of robins and wrens. The magpies, in fact, inaugurated a new era, an era in which it did not appear so absolutely necessary that all boyhood's pursuits should be conducted with secrecy. They revealed the astonishing fact that grown up people could take, or at least affect, some sort of interest in the things which are the important factors of a boy's life. To realize this was an enormous step. There were certain things, many things, yet, which it was advisable to do in secret; that we soon discovered.

It was about a year later than this affair with the magpie's that Joe invented (to us, at least, it was an invention) a new scheme for catching birds. From the village he brought a small spring-trap which the blacksmith's assistant had given him, by way of setting a seal on the peace which had succeeded some ill-feeling caused by a certain matter of young wood-pigeons. It was exactly similar to the common spring rat-traps, only smaller. "We will till it," said Joe (*till* was his local word for *set*), "We will till it out at the back." This meant behind the stables. The phrase indicated all that delightful area which comprised the pigs' place, the rick, and the butt-linhay. We should dearly have liked to have set the trap in the pigs' place itself; that would have been the spot most likely for a catch; but we feared the inquisitive nature of the pigs who would always set to work grouting in any spot on which a man had lately been busy. They would surely disturb our gin. Then it would spring up, its teeth would catch them by the snout,

would scarify that snout, and so bring down on us the wrath of the under-gardener (their caretaker), who at present was our valuable ally. "We must till it just outside the pigs' place," Joe said. He added that to till it attractively we needed corn. This meant that we were to ask the coachman to give us some. We waited about in the harness-room, where the corn-chest was kept, until one o'clock, the hour at which the horses were fed; for we were wise enough to know that we were more likely to find favor, and a handful of oats, if we came when the chest was open than if we came when the coachman, to oblige us, would have to go to his coat and get his keys and then take us to the chest. We recognized that there was a season for the giving of oats and a season for their withholding.

We had often begged oats for baiting figure-of-four traps and for strewing under sieves held off the ground by a stick which we, keeping keen watch, pulled away by a string so soon as a bird was rash enough to get beneath the sieve. Some boys, it is supposed, catch birds with figure-of-four traps, for we still see them described at great length in boys' books as deadly engines for the capture of the small bird. Certainly, however, we never caught any so, though it was not for want of trying, and though we decline to believe for a moment that we were extraordinarily unskilful. With the other plan, however, we did have some success, especially in the hard weather. Very vivid in our recollection is one great day when the snow had lain several inches deep for some forty-eight hours. We cleared a little circle; and that of itself is an attraction sufficient to tempt the birds to come and visit it. Further, we strewed this circle with oats and scraps and bread-crumbs. Then, fixing up a sieve on a stick over the most succulent portions, we led the string attached to this stick through the gaping hinge-joint of the door of one of those low buildings which helped to divide the stable-yard from the pigs' place. It was a poky little place, sometimes used for fattening a pig, sometimes the tenement of a calf, at present without inhabitants. Here, watching keenly the whole day long (for it was Christmas time and there were no lessons) we caught no fewer than three blackbirds; two cocks, with magnificent orange bills and glossy jet-black plumage, and one rusty hen. We also caught a blue-tit; but so elated were we by the triumphs of that glorious day, that of the blue-tit we thought hardly anything, indulging ourselves in infinitely grand visions of the quarry which the future was to provide us from that sieve. Unfortunately we had left out of our reckoning the fickle mild climate of our western county. By the morrow morning the white covering was turned into a yellow slush, and not a bird would be tempted to approach our precious sieve.

So this request for oats, for the tilling of our wonderful new engine, was no novelty, and we obtained a handful without much grumbling. After all, however, we did not till it very near the pigs' place, but in the rubbish at the foot of the hayrick. We dealt with the engine not without a wholesome fear lest it should spring off and catch our clumsy little fingers in its sharp iron teeth, having an exaggerated, yet wholesome, idea of the damage which its snap was likely to inflict. At length we got it tilled, and cunningly covered with rubbish and corn, and retired into the adjacent butt-linhay to await developments. We had great hopes that we might thus have our revenge on the blackbird who loved to worry about among the débris and who had fled away so often, scotfree and laughing at our expense. Tea-time, however, arrived before the blackbird, and we had to go in without any satisfaction of our high-pulsing impatience.

"There's nothing there," Joe assured us, as we ran out to the stables again after a very hurried meal. He had much trouble to persuade us not to go at once to look again; but at length convinced us that it was better policy to leave the scene of the snare untroubled. Before we went in for the

night, he said, we would go together and have another look. We went; and we can distinctly remember, even now, the incredulity, growing to a glad certainty, with which we sighted something, — a bird, — there, where we had cunningly covered the trap. It lay still, — then flapped its wings vainly, tightly held by the feet, — then lay still again, awaiting us with anxious, fearful eyes as we bent over and secured it. It was a yellow-hammer. With the intensest interest we watched Joe press down the spring of the trap with one hand, while the other held the panting little bird, and release its legs from the cruel teeth. Alas, that it needs to be written, both legs were broken! But there was no sorrow or mercy in our pagan little hearts then, only a great joy at the speedy triumph of our latest scheme.

"'Tisn't no good keeping him," Joe remarked with iron philosophy, referring to the broken limbs, and by that he meant, as we well knew, keeping him alive; it was with no notion of setting the bird free (in its crippled state no kindness, truly), that he said the words. So the poor little yellow-hammer met with a mercifully quick death. We realized, however, successful as the gin had proved, that it was not altogether perfect. It was not our desire to kill or maim our captives; and this, not from any motive of mercy (a quality which does not seem to drop into the heart of a boy), but because our visions were always of keeping these birds as prisoners in cages. And once there, it was our constant effort and desire to make them as happy and prosperous as we could; for after all we had fairly kindly, though utterly unreflecting, natures, when once the cruel hunting instinct had been satiated.

Wherefore, after that first incomplete triumph over the yellow-hammer, we bethought ourselves of schemes whereby, still using the sharp-toothed gin, we might save the captives' limbs. We bound round the teeth of the gin with list, and thus saved many; though many still were broken, and some pulled out their legs and escaped, wiser birds. The scene of our greatest success with the steel trap was not behind the stables, but away down at the foot of the arable field beyond the lawn, where some fine beech-trees had been spared at the expense of plough land and pasture. They grew on the steep side of the bank bending quickly to the little stream, where a path led down to a pool formed by damming the stream, for the drinking-place of the cows. In the autumn the floor of this bank became russet red with the fallen beech leaves, and among the leaves were nuts of the beech, which were a particular delight to wood-pigeons and chaffinches. The wood-pigeon was too large game for our little trap to aspire to hold, but the finches were just what we could hope to catch, and, in fact, most often caught. The loose-strewn leaves of beech were an excellent cover for the gin, and often we captured, at the right season, two or three in the afternoon. Then came a sad day. A footway led down either side of the arable field, and the easternmost footway led close beside the beech-strewn bank. On this evil day it happened that one of those in authority, passing along that footway, saw a bird fluttering in an unnatural manner among the beech-leaves, proceeded to investigate, found there a noble cock-chaffinch held by the legs in the teeth of a steel trap — and those legs, alas, broken, in spite of the list around the teeth! The chaffinch was released, — a cruel mercy; the trap was confiscated; and later in the day Authority sat with some severity, but with many unanswerable charges of cruelty, on us who had set the trap, with strict injunctions that no such engines were to be used in the future. Authority was so far wise as to exact no promise, which would have been but to invite its breach; but hereafter it was evident that the sympathy which it had seemed possible to win from Authority was not to be relied upon without reserve. It became evident that while sympathy could be won for some of the interests of boyhood, there were others which

were entirely outside its pale; it became evident, more concretely speaking, that it behoved us boys, in the future use of steel traps, to be secret and wary.

We were not, however, altogether without conscience. We have now the most distinct memory (and the feeling of shame has not been altogether buried by the years that have intervened) of a certain young missel-thrush which we found in the long grass between the croquet-ground and the orchard, and brutally murdered with repeated shots of a large catapult, after it had been maimed by the first. Our nerves repeat for us even now the feeling of self-loathing with which we did this thing; though it is only an intellectual memory that remains to us of the fierce Berserk sort of delight that impelled us at the time to the murder. We knew no feeling of shame then, only a sense of glory, when we succeeded (as now began to happen, very occasionally) in shooting at very close range a trusting hedge-sparrow. This was a really sportsman-like enterprise; but the murder of that ungainly young missel-thrush is a disgrace which will haunt us all our lives. The bird was so big, although so young and helpless! It affected us, then, as the suffering of a horse affects us in adult life.

A missel-thrush Joe called a "home-screech." The origin of the latter half of the name is apparent, derived, obviously, from the scolding screech with which this big, mottled thrush flies off when you scare it; of the first half the significance is not so clear. Perhaps it may be because it scolds so vehemently when you intrude into the neighborhood of its home; perhaps, as the books tell you, it should explain itself by being spelt "*holm*-screech." The missel-thrush is a shy bird during the autumn and summer. We used seldom to see them in the lawn or fields; but when the sacred nesting-time came a pair would nearly always breed in one of the big elm-trees at the foot of the orchard. Theirs was about the only nest that we ever found in those overgrown hedge-elms; and easy enough it was to find, for the birds had perched it most confidingly on a strong branch not far from the ground. It was remarkable for the greenness of its mossy coating, the builder taking none of the pains of the chaffinch and goldfinch in matching the lichen of its nest-walls with the lichen of the tree.

Once only did we find a goldfinch's nest. It was built in an apple-tree which stood outside the orchard and close beside the croquet-ground. How the apple-tree came there was a puzzle as profound as the presence in the orchard of the laurel-bush in which the thrush used to build. But there the tree stood, and late in the year brought forth abundance of rather tart but very juicy apples, extremely grateful in the hot weather to our young palates. It was an unkempt tree, with straggling lean arms; and one of these, stretching out nearly to the gravelled drive, was the favorite headquarters of a flycatcher, whence he would make his short, sharp raids upon the circumambient insects, and then back again to sit very alert and upright on his perch. It was a constant humiliation to us that we never could find out where that flycatcher, who used the same station year after year, had his nest. It is possible that he may have been a misogynistic bachelor; certainly his nest was nowhere in the immediate neighborhood of our house, and the only likely walls which we left unexamined seemed too far away for him. In this apple-tree, then, we found the little gem of a goldfinch's nest, more dainty almost, if indeed that were possible, than the chaffinch's, and a much rarer prize to us. We held long and close debate over that nest; whether it were more politic to take the eggs, which could not escape us, or wait for the young ones to be hatched, and then cage them when they were sufficiently fledged. There was a degree of uncertainty about the latter prospect which more than counterbalanced the delightful vision of a cageful of young goldfinches. The nest would remain a

prey to cats or boys, or any other kind of vermin, for weeks to come; the demand for goldfinches' eggs was considerable, and we should be able to dispose of the remainder advantageously after we had taken a pair for our collection. In the end the goldfinch had to pay the penalty for his beauty and comparative rarity. We pursued a root-and-branch policy with him, taking all the eggs, and, at risk of dreadful reprimands if the offence should be discovered, cut down the slender bough which bore the beautiful nest, and in return for an extra egg, which we gave up in sharing the spoil with Joe, were permitted to add the branch to our collection of trophies. It was no wonder, after that, that the goldfinches forsook us; never again in all the years did they make their nursery with us. We often saw them, in little flocks, perching now and again in the hedge-elms or on the thistle in quest of its seedling down, — saw them sometimes in families, the cock resplendent, the hen in chastened resemblance of his brilliance, the little fellows in tints which gave only a suggestion of like glories which were to be theirs; and these flocks and families we pursued and harassed with our catapults. But they never rested with us, — flitting on from tree to tree as incessant in movement as a family of long-tailed tits.

Of these latter we also discovered a nest, a beautiful oblong dome of moss and lichen and the softest possible home within, as we could feel when we put an intrusive finger through the tiny entrance. And how, in the name of fortune, the numerous family could have found room therein for the stowage of all the tails it puzzled us to imagine.

After all, could any fairy-dwelling or fiction of the imagination be a greater wonder than that miracle of fact, — of feathers, of lichens, of horse-hair, — the long-tailed tit's nest, hung on the undergrowth of our wondrous wood? A more finished miracle of nest-building is scarcely to be named. Yet, much nearer home, in a solitary thick-growing shrub on the border of the croquet-ground, almost beneath the lean shade of that long bare arm of the apple-tree in which the goldfinches built, we found a greater marvel, — a nest of the gold-crested wren; more wonderful, because more tiny; very wonderful indeed to us because we so rarely saw the parent bird. When we did see one it was generally in our beloved wood, pecking about in busy restless fashion, sometimes in a low-growing thicket, but oftener high up in the boughs of the fir-trees. Once we had killed one with a fortunate shot from our catapult, and his tiny skin, grotesquely stuffed and set up by our own little bungling fingers, was one of our most prized treasures. But the nest we discovered without any previous help from seeing the bird in its vicinity. Such a tiny creature might often have escaped even our notice; but, such as it was, there the fairy cup of soft compactness lay, in the midst of the little close-growing shrub, and within it, as an intruding finger quickly discovered, five eggs the size of peas. Two of these eggs we stole forthwith, and one (as was no wonder, though a sore grief), broke in the blowing. But after that, on each successive morning, we found yet another egg, until the total number reached but two short of a dozen, including those which we had taken, and we felt justified in stealing a third, from among so many, to replace the gap made in our collection by our own clumsiness.

We will mention now, for the enlightenment of boys that are to be, the manner of arrangement of this collection; because we were vain enough to think that it was better than the common plan of bedding the eggs in compartments lined with cotton-wool. By the favor and liberality of the Authorities, who extended their sympathy to this collection, we had made a cabinet in the likeness of a small chest of drawers. The drawers were of different depths to accommodate eggs of different sizes, and the bottom of each drawer was of soft wood in which a pin could be stuck easily. Our method was to fasten each pair of eggs, with a

drop of gum for each egg, to a small square of paper on which were written the name of the egg and the locality in which it had been found. Then we pinned these squares of paper, with the eggs, into the drawers, according to the order of classification given in the books on natural history. We found that this appearance of system gave great satisfaction to the Authorities; and we may mention, for the further guidance of boyhood, that human beings will always extend their sympathy more readily to any pursuit which seems, as they phrase it, "to combine instruction with amusement." Human beings are useful allies to a boy, and it is prudent for him always to have a consideration for their weaknesses.

This small cabinet stood on the chest of drawers in our bedroom, and upon it the queerly stuffed gold-crested wren, clinging with wire-stiffened claws to its lichen-covered branch. Over the cabinet, and pendant from nails in the wall, hung a trophy of the goldfinch's nest on the fork of apple-tree to which its builders had fastened it; and to this was later added that nest of the long-tailed tit which we discovered in the wood. It had been our intention to have completed the trophy by supplementing it with the nest of the gold-crested wrens. But calamity (in the shape of a cat, as we surmised), overtook that tiny abode of domestic bliss; for on a very sad morning we found it torn and hanging in pathetic feathery shreds from the low shrub, all the lately hatched atoms gone from it, a heartrending picture of desolation and violence.

After all it had never been quite so great a delight to the eye as the long-tailed tit's nest; for, while the wren's home had been built in the thick darkness of the close shrub, the tit's dome was pendant from two boughs of bramble, as if its architects had sought to show it to the best advantage. There was all the joy of expectation, too, in the comparatively long journey which was needed to arrive at it, and the recurrent anxiety of wondering, all the way along, whether it had been spared by the depredations of boys and crows and cats. Once we had even seen a polecat in that wood; an occasion of great excitement, though it had only been in a fleeting glimpse, long enough, however, for us to identify him beyond doubt. We never saw him again, nor have ever seen, in the wild state, another of his species; and that is no wonder, for he is a rare animal and of nocturnal habits. Rumor had it that there were vipers in that wonderful wood, but it never happened to us to see one. Often, in a sunlit space, we would have a vision of a swift arrow gliding into the security of the grassy tangles, and say to each other that it was an adder, darkly pondering stories of the speedy death of grown men who had been bitten by them. Joe used to speak of their "stinging;" and the expression was the occasion of one of the very rare instances in which we questioned his authority, pointing out to him that only wasps and bees and hornets could sting, but that a snake's weapons of offence were in its teeth, and its stroke therefore to be named a bite. Joe did not argue the point, continuing, however, to speak of a snake's sting, and even intimating that the poor slow-worms (whom we often encountered) were not without that power of attack in certain circumstances which he did not specify.

But once, upon a certain memorable day, we came upon the thing, which we commonly saw only as a gliding arrow, coiled like a twist of rope, basking in the sun, probably asleep. We withdrew stealthily; then, arming ourselves with stout sticks, crept as cautiously forward again to the attack. Joe held the van, as the place of honor, we in attendance as his squires in this feat of knightly enterprise. There was a moment of cruel suspense as Joe's stick was raised; then the stick fell with a whack, and in an instant the green coil was a flashing mass of leaping, writhing loops. We had jumped back after the stroke; but seeing that the enemy seemed incapable of aggressive motion, cautiously drew near him, regarding the flashing loops more

closely. Joe's gallant stroke had done its work; the thing's back was broken. We knew he was an adder. Adders, we had been told, had flat heads, — all poisonous snakes have them; it took no great effort of imagination to see the head of this creature flat. Adders, we had been told, had a diamond mark all down the back; we were not familiar with diamonds, but were sure that this snake had these marks. Another blow still left the poor brute wriggling. Then Joe told us, what of course we knew already, that snakes never die till sunset. This was a complication, for it was necessary for us to bear home in triumph this proof of our prowess. At length, however, we managed to wedge him in the cleft of a stick, pushing him in, with the greatest respect, by means of another stick; and in this manner, while his wrigglings grew weaker, we contrived, without touching him, to bear him home; and summoned all and sundry to witness the dragon of which we had rid the earth.

Of course the Authorities said it was nothing but a grass snake. We had known in our heart of hearts, that it would be so. Authorities, we reflected bitterly, had always some malignant way for belittling our achievements, nor were matters bettered by the knowledge that this way was the way of truth; it only showed once again with what reserve one should put trust in the sympathy of Authorities. Two whole days were needed to arrive at the frame of mind in which we were ready to confess to ourselves that it really was a grass snake; and after that it was our dearest ambition to take unto ourselves such a snake for a pet. We had heard that they made the most delightful pets, living in a box under glass, feeding on slugs and on bread and milk, and revelling in an occasional bath in a basin of water. Luckily, perhaps, we never had the opportunity again of catching a snake unawares; luckily, we say, for perhaps on that occasion it might have happened to be a viper.

From The Minster Magazine.

THE LAND OF SIAM.

THE real white elephant has never been an object of worship. He has always been highly prized by the king of Siam for the same reason that a gardener prizes a black tulip — because it is rare, and hence the proverb that has passed into our language to betoken something that is of embarrassing rarity and utter uselessness. The proverb is a little unjust to the white elephant, for history declares that he was not always so unserviceable. Mounted on a white elephant, the king of Siam used to lead his army against the Burmese, and the black elephants of the enemy no sooner caught sight of the unnatural color than they charged through their own line in wild flight. The white elephant is to the black what the white Yorkshire pig is to his Berkshire cousin. He is an albino, as the white pig was originally, before his color was fixed by generations of artificial selection. Like the pig, the white elephant is of a pale, unwholesome pink or flesh-color. The eyes, dark brown in a black elephant, are in the albino pale blue. There are in Siam two varieties of elephant — a large, tuskless species, strong, fierce, and untamable, and a smaller kind with tusks, which can be easily broken to work if not too old. The large species, handicapped as they are, have been known to fight and kill a full-grown tusked male of the smaller breed. Albinos have never been found among them, and the species itself is said to be fast approaching extinction. Once a year a herd of the smaller species is driven into a corral built of tree trunks, and, after the most likely looking of the young animals have been noosed, the rest are set at liberty. Yet, in spite of this rough treatment, wild elephants show no sign of diminution.

White elephants are too valuable to be allowed to risk injury in the scrimmage that takes place at the gate of the corral; too profitable to their captors to await the annual hunt. As soon as one of them is seen, the swiftest of the tame elephants of the district is chosen

to carry his pursuer. Armed with a lasso, the hunter scours the forests of the hill country where the beast was last seen until he finds him. From that moment he never leaves the trail until the noose has been drawn tight about the hind leg of the flying quarry. To experienced elephant hunters the rest is easy. Shackled to two tame elephants, the captive is escorted down the river to Bangkok, whither the news of his capture has preceded him. The new ideas from the West, that are so fast obliterating the landmarks of old Siam, have not impaired his value, although he is doomed to stand idle in the palace stables instead of honorably carrying the king at the head of a victorious army. The fortunate captor still receives knighthood and a grant of money.

At the present time the king has five white elephants, one of which is no larger than a pony, and a sixth of a hideous piebald of brown and black. They are to Siam what the lion is to England, the national emblem, and they give their name to the most honorable order of merit in the gift of the king. White elephants were the cause of the first humbling of Siam by Burmah. In 1548, King Maha Jakra-pâd (King-of-the-white-elephants) owned no less than seven, and the fame of this vast wealth reached the king of Burmah. Envoys were sent to beg two out of the seven for their master, and within a few months of their repulse a Burmese army encamped at the gates of the city of Ayuthia. Taken by surprise, the Siamese king was fain to meet the invader at a spot without the walls, where an image of Buddha was set up and priests sat on lofty seats as assessors in the dispute. The Burmese king now demanded a war indemnity of four elephants, and the king's eldest son and chief minister, who had counselled him to deny the suit of the envoys, as hostages. To all these humiliating demands the king of Siam was fain to agree.

The history of Siam is full of tragedy. Dynasties have changed, and with every change the founder of the new line has waded to the throne through blood. Even the legitimate succession of sons to their fathers was not always unstained by bloodshed. Until lately it was not the custom for the king to nominate his successor. The eldest son of the principal queen usually succeeded, but since the king had more than one wife of high rank, it was difficult to distinguish between the claims of their children. Success fell to him who had the most powerful adherents, and these, for their own safety, compelled their *protégé* to inaugurate his reign by executing his rival brothers. Princes of the blood had the distinction of being executed in a more painful way than the common herd of malefactors. The ordinary criminal received the apologies of his executioner seated cross-legged upon the ground. Until he gave his pardon for the liberty that was to be taken with him, the execution could not go on; but, so courteous is the Siamese nature, that there is no recorded case of the pardon being withheld from interested motives. The victim's ears were then plugged with clay to deaden the sound of the executioner's approach, and, as he sat with bowed head, the swordsman drew nearer and nearer in a sort of conventional dance, and at last severed the vertebra at a single stroke. Then he rushed off to the nearest temple to be purified, leaving his assistant to lift the prone head, and finish the business with his knife. The blood of princes was not shed; their life was beaten out of them. Tied up in a kind of sack, they were fastened to a short post with a cross-beam under their chins. Four men armed with bludgeons then ran upon them from behind, each dealing them a heavy blow on the nape of the neck. The quivering bodies were seized and flung, sack and all, into the river. Such were the privileges of being born in the purple.